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IMAGE SENSING SOLUTIONS

Colour Camera Block

Colour Pan/Tilt/Zoom

2010
Visual Communications Product Catalogue

Visual Communications

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New Product Information

Colour Camera Block

FCB-EX E version …COMING SOON

FCB-EX1020(NTSC)
FCB-EX1020P(PAL)

Release Schedule: 2010 Autumn season

- 1/4-type EXview HAD CCD
- Auto Focus 36x Zoom Lens
- Excellent AF performance
- Higher resolution: 540 TV lines (Tentative)
- Progressive Scan
- Digital output (Comparable to ITU-R BT656)
- Image Stabiliser
- Automatic Wide-D On/Off switching
- Auto ICR function
  (Focus compensation in Auto ICR mode)
- Improvement on Spherical Privacy Zone Masking
  - Correction for shift of mask in E-Flip mode
  - Addition of rhombic mask
- Longer slow AE response up to 2 min. (Max.)
- Improvement on picture quality in AWB mode
- Operation temperature: -5°C to +60°C
- Temperature readout
- White Balance
  - Outdoor Auto mode
  - Sodium Vapor Lamp mode

FCB-EX995E(NTSC) FCB-EX985E(NTSC)
FCB-EX995EP(PAL) FCB-EX985EP(PAL)

Release Schedule: 2010 Autumn season

- 1/4-type EXview HAD CCD (FCB-EX995E/EX995EP)
- 1/4-type Super HAD CCD II (FCB-EX985E/EX985EP)
- Auto Focus 28x Zoom Lens
- Excellent AF performance
- Higher resolution: 540 TV lines (Tentative)
- Digital output (Comparable to ITU-R BT656)
- Image Stabiliser
- Auto ICR function
  (Focus compensation in Auto ICR mode)
- Improvement on Spherical Privacy Zone Masking
  - Correction for shift of mask in E-Flip mode
  - Addition of rhombic mask
- Longer slow AE response up to 2 min. (Max.)
- Improvement on picture quality in AWB mode
- Operation temperature: -5°C to +60°C
- Temperature readout
- White Balance
  - Outdoor Auto mode
  - Sodium Vapor Lamp mode

FCB-EX490E(NTSC) FCB-EX48E(NTSC)
FCB-EX490EP(PAL) FCB-EX48EP(PAL)

Release Schedule: 2010 Autumn season

- 1/4-type EXview HAD CCD (FCB-EX490E/EX490EP)
- 1/4-type CCD (FCB-EX48E/EX48EP)
- Auto Focus 18x Zoom Lens
- Excellent AF performance
- Higher resolution: 540 TV lines (Tentative)
- Digital output (Comparable to ITU-R BT656)
- Improvement on Spherical Privacy Zone Masking
  - Correction for shift of mask in E-Flip mode
  - Addition of rhombic mask
- Longer slow AE response up to 2 min. (Max.)
- Improvement on picture quality in AWB mode
- Operation temperature: -5°C to +60°C
- Temperature readout
- White Balance
  - Outdoor Auto mode
  - Sodium Vapor Lamp mode

FCB-EX490E/EX490EP only:

- Automatic Wide-D On/Off switching
- Progressive Scan
- Auto ICR function
  (Focus compensation in Auto ICR mode)

New Product Information

Colour Pan/Tilt/Zoom
EVI-HD Series

Outline

EVI-HD7V
EVI-HD3V

The EVI-HD7V achieves digital image acquisition of up to 1080p/60 for exceptional picture quality. The EVI-HD3V provides superb image quality of up to 720p/60 at an affordable price.

Both cameras are equipped with a DVI-I interface, enabling easy connection to a PC monitor.

EVI-HD1

The EVI-HD1 is a High-Definition (HD) color camera equipped with a 2-megapixel CMOS. The camera supports 14 formats, including 1080i full high-definition video, and it allows for high-quality image transfer via the digital interface (HD-SDI).

The pan/tilt mechanism uses an extremely quick and quiet direct drive motor.

Features

Flexibility and Choice of Video Outputs From SD to Full HD

EVI-HD Series provides multiple formats for natural and smooth video images.

	EVI-HD7V	EVI-HD3V	EVI-HD1
1080p/59.94 1080p/50	✓		
1080i/59.94 1080i/50	✓		✓
1080p/29.97 1080p/25	✓		✓
720p/59.94 720p/50	✓	✓	✓
720p/29.97 720p/25	✓	✓	✓
640 x 480p/59.94	✓ (LB)	✓ (LB)	
SD			✓ (LB,CR,SQ)

LB: Letter box CR: Cropping SQ: Squeeze

High-quality Image Transmission

The EVI-HD7V and EVI-HD3V are both equipped with a DVI-I interface that is designed to maximize high video quality of digital displays. This digital interface is capable of displaying both digital and analog signals (output is selectable from Y/Pb/Pr and RGB). The EVI-HD1 features an HD-SDI interface, enabling long-distance transmission of HD images without degrading the picture quality.

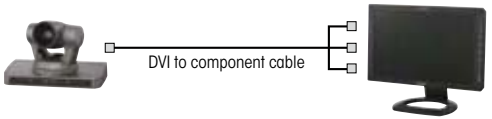
Video Interface

Camera		EVI-HD7V/HD3V	EVI-HD1
Digital output	IF	DVI-I (Digital)	HD-SDI
	Colour coding	RGB or Y/Pb/Pr*1	Y/Cb/Cr
Analog output	IF	DVI-I (Analog)	Component (D-sub 15-pin)
	Colour coding	RGB or Y/Pb/Pr*1	Y/Pb/Pr
	Tri-level Sync on video signal	On or Off*2	Always on
	Sync signal	HD and VD	HD and VD, or HD and Tri-level Sync*1

*1 Can be set by OSD or VISCA *2 Selected by DIP SW

Connection of EVI-HD7V/HD3V to HD Monitor

By selecting Y/Pb/Pr in colour coding of EVI-HD7V/HD3V, analog component signals can be output to an HD monitor.



Wide-range, Quiet, and Quick Pan/Tilt Movement

All models in the EVI-HD Series utilise a direct drive motor mechanism for achieving high-speed, quiet, and smooth P/T/Z operations to capture images. These cameras cover a wide shooting range, ideal for capturing extensive areas where face-to-face discussions are critical. The face-to-face experience is enhanced by the unique quiet operation of the direct drive pan/tilt mechanism.

- Pan angle: -100° to +100° (max pan speed: 300 degrees/s)
- Tilt angle: -25° to +25° (max tilt speed: 125 degrees/s)

10x Optical (40x with Digital Zoom)

All models in the EVI-HD Series are equipped with a 10x optical zoom lens. They have 40x zoom ratio with 4x digital zoom lens. This fast and stable auto-focus lens can clearly capture small and intricately featured objects.

Other Features

RS-232C Remote Control (VISCA™ Protocol)

The EVI-HD Series enables camera settings and P/T/Z control functions to be performed remotely at any location and at high communication speeds via the RS-232C interface.

Six Position Presets

All models in the EVI HD Series can store up to a maximum of six preset settings for P/T/Z, focus position, exposure mode, and white balance mode.

Customisable Settings via On-screen Menu using IR Remote Commander® Unit

Users are able to adjust various camera settings using IR Remote Commander unit. The easy-to-use supplied IR Remote Commander unit is useful for full operation of the EVI-HD Series from various locations within a room.

Colour Camera Block

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High Definition Colour Camera Block

FCB-H11

1/3 Type HD CMOS | 10x Optical Zoom | 12x Digital Zoom | 16x9 Aspect Ratio | Built-in Zoom Lens | Day/Night Function | Picture Freeze Function
Progressive Scan | SD to HD video Output | Slow Shutter | SPOT AE Function | VISCA Protocol | White Balance

Outline

Combining Excellent Picture Quality, Multiple Video Outputs, and a Newly Added Day/Night Function, the **FCB-H11** Makes Vision Solutions Crystal Clear

The world of HD expanded into the industrial imaging arena with the debut of Sony's first HD block camera, the FCB-H10. Now, continuing its commitment to HD picture quality for applications that require dynamic, high-resolution images that are also flexible, Sony is introducing the FCB-H11. This stunning new model extends application possibilities by incorporating a new Day/Night function that enables the camera to capture high-quality colour images during the day and clear, black-and-white images at night.

In addition, the FCB-H11 camera achieves a minimum illumination of 1.0 lx by dynamically removing the infrared cut filter and allowing the spectral responsivity range to extend into the near infrared.

The FCB-H11 incorporates a 1/3-type HD CMOS image sensor boasting approximately two million effective pixels, and provides a 16 x 9 aspect ratio, making it ideal for use with wide-screen displays. This camera also features multi-format video outputs, satisfying user needs for high-definition (HD) and standard-definition (SD) applications. When extremely clear, super picture quality HD images are required, the FCB-H11 camera offers 1080i and 720p signals. This versatile and flexible camera can also be used with an SD system to allow easy migration from SD to HD when you are ready.

The FCB-H11 inherits a multitude of functions from the world-renowned FCB Series. With a 120x zooming capability, Picture Freeze function, SPOT AE function, and Slow Shutter, the FCB-H11 is ideal for applications such as inspection, video conferencing, HD CCTV, cable TV broadcasting, and point-of-view (POV) applications. Furthermore, with the incorporation of the Day/Night function, which is essential for monitoring, this camera is a great choice for a wide range of security applications in, for example, parking lots, retail stores, and many other locations.

Features

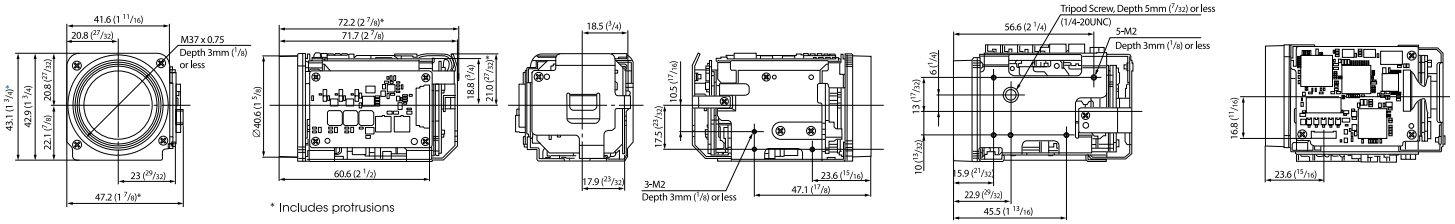
Superb Picture Quality with Two Megapixel HD CMOS Sensor

The FCB-H11 employs a 1/3-type HD CMOS sensor (approximately two million effective pixels) providing excellent picture quality and high-resolution images.

Multi-Format Video Outputs from NTSC/PAL to Full HD

The FCB-H11 can provide full high-definition video in 1080i format. Depending on your application and configuration, you can select the format that is right for you. With eight video formats from SD to full HD, the FCB-H11 camera module allows you to easily migrate from SD to HD.

Dimensions (mm)



* Includes protrusions

Features

Day/Night Function

With a new Day/Night capability, the FCB-H11 offers optimal sensitivity in changing light conditions, which is a typical challenge in round-the-clock security operations. As the scene darkens, an infrared filter is automatically replaced with a clear filter, and the camera switches to black-and-white mode, allowing for operation at a minimum illumination of 1.0 lx (F1.8, 50 IRE).

120x Zoom Ratio (10x Optical + 12x Digital)

The FCB-H11 incorporates a 10x optical zoom lens allowing for a zoom capability of up to 120x when used in combination with its 12x digital zoom. Combining these lens features, users can effortlessly capture close-up or wide-angle shots.

Compact and Lightweight Design

The compact and lightweight body of the FCB-H11 allows it to be installed in many different space-restricted environments.

Picture Freeze Function

The Picture Freeze Function outputs a still image while the FCB-H11 camera is panning, tilting, zooming, focusing, initializing the lens, or performing preset operations. This helps prevent the display of unnecessary images during these operations.

Other Features

- SPOT AE Function
- Slow Shutter
- Low Power Consumption (4.8 W)

Pin Assignment and Connector

24 P FFC Connector for Camera Control, Analog Video Output, Power.

Pin No.	Signal	Level
1	GND	
2	TxD	TTL Level (0 V - 5.0 V)
3	TxD	TTL Level (0 V - 5.0 V)
4	RESET-IN	Reset: Low (GND) Normal: Open
5	GND	
6	Y_OUT	Y/C Y_OUT
7	GND	
8	C_OUT	Y/C C_OUT
9	GND	
10	VBS OUT	
11	GND	
12	Y_OUT	HD Analog Component
13	GND	
14	Pb OUT	HD Analog Component
15	GND	
16	Pr OUT	HD Analog Component
17	GND	
18	POWER	6.0 V - 12.0 V DC
19	POWER	6.0 V - 12.0 V DC
20	POWER	6.0 V - 12.0 V DC
21	POWER	6.0 V - 12.0 V DC
22	GND	
23	POWER	6.0 V - 12.0 V DC
24	GND	

Connector: KYOCERA ELCO 04 6240 224 006 848+

Specifications

		FCB-H11
Image sensor		1/3-type CMOS
Effective number of pixels		Approx. 2,000,000 pixels
Aspect ratio	HD	16:9
	SD	4:3/16:9
Lens		10x optical zoom, f=5.1 mm (wide) to 51.0 mm (tele), F1.8 to F2.1
Digital zoom		12x (120x with optical zoom)
Horizontal angle of view		50° (wide) to 5.4° (tele)*
Minimum object distance		10 mm (wide) to 800 mm (tele)
Sync system		Internal
Minimum illumination		ICR off mode : 12 lx (typical) (F1.8, 50 IRE) ICR on mode : 1 lx (typical) (F1.8, 50 IRE)
S/N ratio		More than 50 dB
Electronic shutter		1/2 to 1/10,000 s, 21 steps
White balance		Auto, Indoor, Outdoor, One-push, Manual
Gain		Auto/Manual (-3 to 18 dB, 8 steps)
AE control		Auto, Manual, Shutter Priority, Iris Priority, Bright, Spot AE
EV compensation		-10.5 to 10.5 dB (15 steps, 1.5 dB increments)
Backlight compensation		On/Off
Signal system	HD	1080/59.94i, 1080/50i, 720/59.94p, 720/50p
	SD	NTSC (Crop/Squeeze), PAL (Crop/Squeeze)
Video output	HD	Analog component: Y/Pb/Pr
	SD	VBS: 1.0 Vp-p (sync negative) Y/C
Focus system		Full Auto (Normal AF/Interval AF/Zoom Trigger AF), One-push Trigger, Manual, Infinity, Near Limit Setting
Picture effects		Nega Art, Black & White, Picture Freeze
Camera operation switch		Zoom tele, Zoom wide
Camera control interface		VISCA (TTL signal level), baud rate: 9.6 Kb/s, 19.2 Kb/s, 38.4 Kb/s, stop bit: 1 bit
Storage temperature		-20 to 60 °C (-4 to 140 °F)
Operating temperature		0 to 45 °C (32 to 81 °F)
Power consumption		6 to 12 V DC/4.8 W
Mass		Approx. 120 g (4.2 oz)
Dimensions (w x h x d)		47.2 x 43.1 x 72.2 mm (1 7/8 x 1 3/4 x 2 7/8 inches)
Supplied accessory		24P FFC (Flat Flexible Cable)

* in HD and SD SQUEEZE output mode

NOTE

Digital output is also available on request.
Contact your sales representative for details.

High Definition Colour Camera Block

FCB-H10

1/3 Type HD CMOS | 10x Optical Zoom | 12x Digital Zoom | 16x9 Aspect Ratio | Built-in Zoom Lens | Picture Freeze Function
Progressive Scan | SD to HD video Output | Slow Shutter | SPOT AE Function | VISCA Protocol | White Balance

Outline

The Sony High-Definition **FCB-H10** colour camera module with its stunning images takes your applications to the next generation.

Sony continues to be on the cutting edge of HD (high-definition) technology and is a leader in producing high-quality camera modules. Introducing the first Sony HD camera module to the FCB Series – the FCB-H10. This camera module can expand your solutions by providing high-quality and high-resolution images that only HD can offer.

The new FCB-H10 colour camera module allows you to experience the world of HD with a 1080i and 720p signal system. This exceptional camera module incorporates a 1/3-type HD CMOS image sensor boasting approximately two-million effective pixels, and provides a 16 x 9 aspect ratio making it ideal for use with wide screen displays. The FCB-H10 camera module also features multi-format video outputs from SD to full HD (1080i), offering both system flexibility and high-quality images.

In addition, the FCB-H10 inherits many outstanding features from the Sony world-renowned FCB Series. With its built-in zoom lens, Picture Freeze Function, SPOT AE Function, and Slow Shutter, the FCB-H10 is ideal for applications that require dynamic, high-resolution images, and flexible outputs such as videoconferencing, cable TV broadcasting, and point-of-view (POV) applications.

Features

Superb Picture Quality – Two-Megapixel HD CMOS Sensor

The FCB-H10 incorporates a 1/3-type HD CMOS sensor (approximately two-million effective pixels) providing outstanding picture quality and high-resolution images.

Multi-Format Video Outputs from NTSC/PAL to Full HD

The FCB-H10 can provide full high-definition video in 1080i format. Depending on your application and configuration, you can select the format that is right for you. With eight video formats from SD to full HD, the FCB-H10 camera module allows you to easily migrate from SD to HD.

High-Speed Serial Interface (max. 38.4 kb/s) and TTL Signal-Level Control (VISCA protocol)

All camera settings can be performed by VISCA protocol at high communication speeds up to 38.4 kb/s.

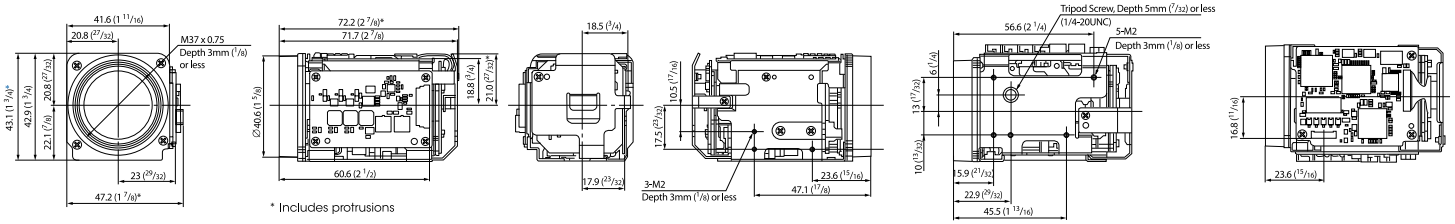
120x Zoom Ratio (10x Optical + 12x Digital)

The FCB-H10 incorporates a 10x optical zoom lens, achieving an outstanding zoom capability of up to 120x when used in combination with its 12x digital zoom.

Compact and Lightweight Design

With its compact and lightweight (approx. 120 g / 4.2 oz) design, the FCB-H10 can be integrated into systems having limited space.

Dimensions (mm)



* Includes protrusions

Features

Picture Freeze Function

The Picture Freeze Function outputs a still image while the camera is panning, tilting, zooming, focusing, initialising the lens, or performing preset operations. This helps prevent the display of unnecessary images.

SPOT AE Function

The AE area of the FCB-H10 can be selected from any block in a 16 x 16 matrix of the image to optimize brightness within the desired area.

Other Features

- Slow Shutter
- Low Power Consumption (3.8 W)

Pin Assignment and Connector

24 P FFC Connector for Camera Control, Analog Video Output, Power.

Pin No.	Signal	Level
1	GND	
2	TxD	TTL Level (0 V - 5.0 V)
3	TxD	TTL Level (0 V - 5.0 V)
4	RESET-IN	Reset: Low (GND) Normal: Open
5	GND	
6	Y_OUT	Y/C Y_OUT
7	GND	
8	C_OUT	Y/C C_OUT
9	GND	
10	VBS OUT	
11	GND	
12	Y_OUT	HD Analog Component
13	GND	
14	Pb OUT	HD Analog Component
15	GND	
16	Pr OUT	HD Analog Component
17	GND	
18	POWER	6.0 V - 12.0 V DC
19	POWER	6.0 V - 12.0 V DC
20	POWER	6.0 V - 12.0 V DC
21	POWER	6.0 V - 12.0 V DC
22	GND	
23	POWER	6.0 V - 12.0 V DC
24	GND	

Connector: KYOCERA ELCO 04 6240 224 006 848+

Specifications

		FCB-H10
Image sensor		1/3-type CMOS
Effective number of pixels		Approx. 2,000,000 pixels
Aspect ratio	HD	16:9
	SD	4:3/16:9
Lens		10x optical zoom, f=5.1 mm (wide) to 51.0 mm (tele), F1.8 to F2.1
Digital zoom		12x (120x with optical zoom)
Horizontal angle of view		50° (wide) to 5.4° (tele)*
Minimum object distance		10 mm (wide) to 800 mm (tele)
Sync system		Internal
Minimum illumination		12 lx (typical) (F1.8, 50 IRE)
S/N ratio		More than 50 dB
Electronic shutter		1/2 to 1/10,000 s, 21 steps
White balance		Auto, Indoor, Outdoor, One-push, Manual
Gain		Auto/Manual (-3 to 18 dB, 8 steps)
AE control		Auto, Manual, Shutter Priority, Iris Priority, Bright, Spot AE
EV compensation		-10.5 to 10.5 dB (15 steps, 1.5 dB increments)
Backlight compensation		On/Off
Signal system	HD	1080/59.94i, 1080/50i, 720/59.94p, 720/50p
	SD	NTSC (Crop/Squeeze), PAL (Crop/Squeeze)
Video output	HD	Analog component: Y/Pb/Pr
	SD	VBS: 1.0 Vp-p (sync negative) Y/C
Focus system		Full Auto (Normal AF/Interval AF/Zoom Trigger AF), One-push Trigger, Manual, Infinity, Near Limit Setting
Picture effects		Nega Art, Black & White, Picture Freeze
Camera operation switch		Zoom tele, Zoom wide
Camera control interface		VISCA (TTL signal level), baud rate: 9.6 Kb/s, 19.2 Kb/s, 38.4 Kb/s, stop bit: 1 bit
Storage temperature		-20 to 60 °C (-4 to 140 °F)
Operating temperature		0 to 45 °C (32 to 81 °F)
Power consumption		6 to 12 V DC/4.8 W
Mass		Approx. 120 g (4.2 oz)
Dimensions (w x h x d)		47.2 x 43.1 x 72.2 mm (1 7/8 x 1 3/4 x 2 7/8 inches)
Supplied accessory		24P FFC (Flat Flexible Cable)

* in HD and SD SQUEEZE output mode

NOTE

Digital output is also available on request.
Contact your sales representative for details.

FCB-EX Series

FCB-EX45MC	12
FCB-EX45MCC	12
FCB-EX45C	14
FCB-EX45CP	14
FCB-EX1010/1010P	17
FCB-EX990D/990DP	17
FCB-EX490D/490DP	17
FCB-EX20D/20DP	17
FCB-EX11D/11DP	17
FCB-EX1000/1000P	17
FCB-EX980S/980SP	17
FCB-EX980/980P	17
FCB-EX480C/480CP	17
FCB-EX48C/48CP	17

Monochrome Block Camera

FCB-EX45MC
FCB-EX45MCC

1/4 Type EXview HAD CCD | 18x Optical Zoom | 12x Digital Zoom | Digital Signal Processor | Spherical Privacy Zone Masking | SMART Lens Control | SPOT AE Function | VISCA Protocol

Outline

The new Sony **FCB-EX45MC*** black-and-white block camera incorporates advanced features and especially suited for security-dome, traffic-monitoring, airline-security and facial-recognition applications.

Adopting a 1/4 type B/W EXview HAD CCD™, the FCB-EX45MC achieves excellent sensitivity of less than 0.01 lx – making it ideal for extremely low-light environments. Featuring a high-performance Digital Signal Processor (DSP), the FCB-EX45MC camera also achieves a high resolution of 520 TV lines and is equipped with an 18x optical zoom lens.

The FCB-EX45MC camera incorporates an Enhanced Spherical Privacy Zone Masking feature and SMART Lens Control technology. It also inherits many popular functions from earlier FCB-EX Series, such as Spot AE, quick camera control via a high-speed serial interface (max. 38.4 kb/s) and customisable settings. Combining superb picture quality and a variety of convenient functions, the FCB-EX45MC is a match for a wide range of surveillance and monitoring applications.

* In the following text, "FCB-EX45MC" refers to both the FCB-EX45MC (EIA model) and the FCB-EX45MCC (CCIR model).

Features

- **1/4 type EXview HAD CCD**
- **FCB-EX45MC: 380,000 pixels (Black and White)**
- **FCB-EX45MCC: 440,000 pixels (CCIR)**
- **Extremely low minimum sensitivity of 0.01 lx (typical)**
- **High horizontal resolution of 520 TV lines**
- **216x zoom ratio (18x optical, 12x digital)**
- **Spot AE**

The AE area is selected from one of the 16 vertical/16 horizontal blocks of the picture to optimize brightness within the desired area.

Enhanced Spherical Privacy Zone Masking

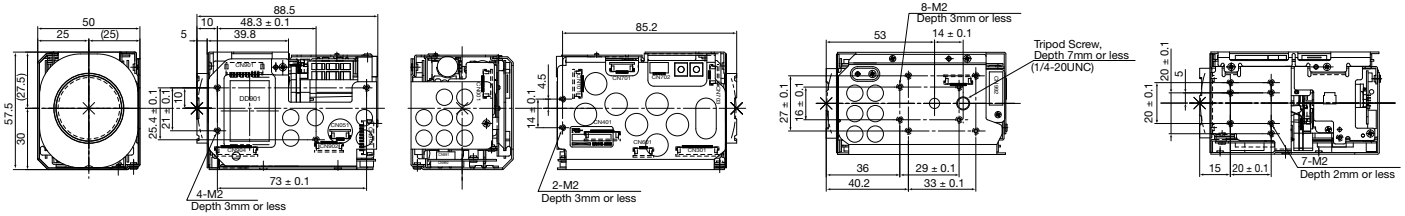
Unwanted or prohibited areas within an image can be masked precisely and appropriately.
This technology allows masking areas to be interlocked with Pan/Tilt/Zoom movements regardless of the camera angle. A maximum of 24 masking areas can be preset to any of 160 horizontal and 120 vertical masking blocks, and up to eight block positions with two colours can be selected together.

Unique Algorithms for Lens-Life Extension

Autofocus (AF) Algorithm
This unique algorithm makes the block camera ideal for security applications, in which 24/7 continuous usage is common. This technology controls the unit's autofocus function to provide extended lens life and steady image quality.

SMART (Sony Modular Automatic lens Reset Technology) Lens Control*
Automatically compensates for mechanical misalignment of the lens, which may occur over a long period of continuous usage.

Dimensions (mm)



Features

- High-speed serial interface (max. 38.4 kb/s) and TTL signal-level control (VISCA™ protocol)
- Various customisable settings
- Internal/External sync
- 16-Bytes of Memory is Available for Recording Data such as Product Serial Numbers and Camera/System ID Numbers
- Low power consumption – min. 1.5 W (when motors are inactive)
- Environmentally-friendly (Lead-free solder and Halogen-free Printed-circuit boards)

Pin Assignment

CN992

Pin No.	Signal	Level
1	RxD	CMOS 5.0V (low: max 0.8 V, high: min 2.0 V)
2	TxD	CMOS 5.0V (low: max 0.1 V, high: min 4.4 V)
3	GND (for RxD & TxD)	
4	DC IN	9.0 V ± 3.0 V
5	GND (for DC IN)	
6	VS OUT	1.0 V ±0.2 V
7	GND (for VBS OUT)	
8	V LOCK PULSE	External VD-Lock Pulse (EX.FV: Negative, 3.30 Vp-p 50%
9	GND (VL PULSE)	

Connector: ELCO 00 6200 509 13000

Specifications

	FCB-EX45MC	FCB-EX45MCC
Image sensor	1/4 type EXview HAD CCD	1/4 type EXview HAD CCD
Number of effective pixels (H x V)	768 x 494	752 x 582
Signal system	EIA	CCIR
Lens	18x zoom f=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0	18x zoom f=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0
Digital zoom	12x (216x with optical zoom)	12x (216x with optical zoom)
Angle of view (H)	48° (wide end) to 2.7° (tele end)	48° (wide end) to 2.7° (tele end)
Minimum working distance	35 mm (wide end), 800 mm (tele end)	Less than 0.01 lx at 1/50 s (50 IRE)
Sync system	Internal/External (V-Lock)	Internal/External (V-Lock)
Minimum illumination	Less than 0.01 lx at 1/60 s (50 IRE)	Less than 0.01 lx at 1/50 s (50 IRE)
S/N ratio	More than 50 dB	More than 50 dB
Horizontal resolution	520 TV lines	520 TV lines
Electronic shutter	1/60 to 1/10000 s, 16 steps	1/50 to 1/10000 s, 16 steps
Gain	Auto/Manual (-3 to 28 dB, 2 dB steps)	Auto/Manual (-3 to 28 dB, 2 dB steps)
AE control	Auto, Manual, Priority mode, Bright, EV compensation, Back-light compensation	Auto, Manual, Priority mode, Bright, EV compensation, Back-light compensation
EV compensation	-10.5 to +10.5 dB (1.5 dB steps)	-10.5 to +10.5 dB (1.5 dB steps)
Backlight compensation	On/Off	On/Off
Privacy zone masking	On/Off	On/Off
On screen display	Title, Privacy Zone Block	Title, Privacy Zone Block
Flicker cancel	Auto	–
Focusing system	Auto (Sensitivity: H, L), One-Push AF, Manual, Infinity, Interval AF, Zoom Trigger AF	Auto (Sensitivity: H, L), One-Push AF, Manual, Infinity, Interval AF, Zoom Trigger AF
Picture effects	Nega art	Nega art
Camera operation switch	Zoom tele, Zoom wide	Zoom tele, Zoom wide
Video output	VS: 1.0 Vp-p (sync negative)	VS: 1.0 Vp-p (sync negative)
Camera control interface	VISCA Protocol (TTL signal level)	VISCA Protocol (TTL signal level)
Storage temperature	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°F)
Operating temperature	0°C to 50°C (32°F to 122°F)	0°C to 50°C (32°F to 122°F)
Power consumption	6 to 12 V DC/1.5 W (typical) (motors inactive), Less than 2.5 W (typical) (motors active)	6 to 12 V DC/1.5 W (typical) (motors inactive), Less than 2.5 W (typical) (motors active)
Mass	Approx. 230 g (8.1 oz)	Approx. 230 g (8.1 oz)
Dimensions	50 x 57.5 x 88.5 mm (2 x 2 3/8 x 3 1/2 inches)	50 x 57.5 x 88.5 mm (2 x 2 3/8 x 3 1/2 inches)

* The initial factory setting for the SMART Lens Control function is" OFF". When the function is turned OFF and the unit is used continuously for more than 24 hours, lens system initialisation is recommended every 24 hours to extend the life of the lens. The" Initialize Lens" command takes a little less than 3 seconds to initialize the focus and zoom. When the Smart Lens Control function is turned ON, lens initialisation is not required.

Colour Block Camera

FCB-EX45C
FCB-EX45CP

1/4 Type Super HAD CCD | 18x Optical Zoom | 12x Digital Zoom | Digital Signal Processor | VISCA Protocol | Privacy Zone Masking | Alarm Function | Backlight Compensation

Outline

The Sony **FCB-EX45C/P** is an entry level camera specifically designed for cost conscious applications where certain high quality features cannot be compromised on. It is ideally suited to daylight based or indoor applications, such as security, low vision integration and basic inspection applications.

The FCB-EX45C/P camera incorporates many of the class leading features associated with the FCB-C series range, including enhanced spherical privacy zone masking, six memory presets and an alarm function. It's 18x optical zoom combines an extremely quick and precise zoom & auto focus capability with superb image quality provided by its proven 1/4 Inch Super HAD CCD sensor. The FCB-EX45C/P draws on Sony's industry leading experience in camera block design & manufacturing by combining high performance with high reliability in an affordable way.

Features

- **Super HAD™ CCD**

Features 380,000 (NTSC) or 440,000 (PAL) effective picture elements and high-sensitivity shooting. The minimum illumination required is 1.0 lx.

- **18x optical zoom**
- **Supports external synchronisation (V-lock)**
- **Adopts a newly developed DSP for improved picture quality when using the digital zoom**
- **VISCA**

A communications protocol which enables the camera to be controlled remotely by commands from a host computer/controller.

- **Six memory locations**

Provided to temporarily save and recall up to six sets of camera settings.

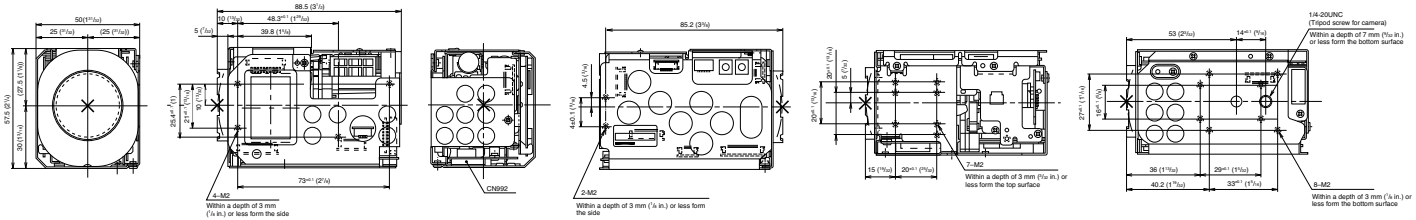
- **Enhanced privacy zone masking (max. 24 blocks)**
- **Alarm function**
- **Zoom**

The FCB camera employs an 18x optical zoom lens combined with a digital zoom function allowing you to zoom up to 216x.

Lens specifications: Optical 18x, f=4.1 to 73.8 mm (F1.4 to F3.0)

The horizontal angle of view is approximately 48 degrees (wide end) to 2.8 degrees (tele end). Digital Zoom enlarges the centre of the subject by expanding each image in both the vertical and horizontal directions. When 216x zoom is used, the number of effective picture elements in each direction reduces to 1/12 and the overall resolution deteriorates.

Dimensions (mm)



Features

Back Light Compensation

When the background of the subject is too bright, or when the subject is too dark due to shooting in the AE mode, back light compensation will make the subject appear clearer.

Memory (Position Preset)

Using the position preset function, 6 sets of camera shooting conditions can be stored and recalled. This function allows you to achieve the desired status instantly even without adjusting the following items each time:

- **Zoom Position**
- **Digital Zoom On/Off**
- **Focus Auto/Manual**
- **Focus Position**
- **AE Mode**
- **Shutter control parameters**
- **Bright Control**
- **Iris control parameters**
- **Gain control parameters**
- **Exposure Compensation On/Off**
- **Exposure Level**
- **Backlight Compensation On/Off**
- **White Balance Mode**
- **R/B Gain**
- **Apeture**

Title Display

The camera can be given a title containing up to 20 characters such as “ENTRANCE” or “LOBBY”. The position of the first character (horizontal, vertical) of the title, blinking state, and colour can also be changed.

Privacy Zone Function

Privacy Zone masking protects private objects and areas such as house windows, entrance, and exits which are within the camera’s range of vision but not subject to surveillance.

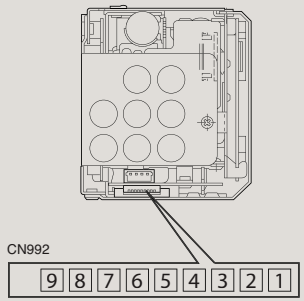
Privacy Zone masking can be masked on the monitor to protect privacy.

Specifications

	FCB-EX45C	FCB-X45CP
Image sensor	1/4 type IT CCD (Super HAD)	1/4 type IT CCD (Super HAD)
Picture elements	Approx. 380,000 pixels (768 (H) x 494 (V))	Approx. 440,000 pixels (752 (H) x 582 (V))
Horizontal resolution	NTSC: 470 TV lines (WIDE end)	PAL: 460 TV lines (WIDE end)
Lens	18x zoom f=4.1 mm (WIDE) to 73.8 mm (TELE), F1.4 to F3.0 Zoom movement speed Optical WIDE/Optical TELE 2.1 s Optical WIDE/Digital TELE 3.7 s Digital WIDE/Digital TELE 1.7 s ∞ to Near 0.5 s	18x zoom f=4.1 mm (WIDE) to 73.8 mm (TELE), F1.4 to F3.0 Zoom movement speed Optical WIDE/Optical TELE 2.1 s Optical WIDE/Digital TELE 3.7 s Digital WIDE/Digital TELE 1.7 s ∞ to Near 0.5 s
Digital zoom	12x (216x with optical zoom)	12x (216x with optical zoom)
Angle of view (H)	48° (WIDE end) to 2.8° (TELE end)	48° (WIDE end) to 2.8° (TELE end)
Minimum working distance	290 mm (WIDE end), 800 mm (TELE end)	290 mm (WIDE end), 800 mm (TELE end)
Sync system	Internal/External (V-Lock)	Internal/External (V-Lock)
Minimum illumination	1.0 lx (F1.4, 1/60 s (NTSC))	1.0 lx (F1.4, 1/50 s (PAL))
Recommended illumination	100 to 100,000 lx	100 to 100,000 lx
S/N ratio	50 dB or more	50 dB or more
Backlight compensation	On/Off	On/Off
Electronic shutter speed	1/60 to 1/10,000 s (16 steps)	1/50 to 1/10,000 s (16 steps)
White balance	AUTO, ATW, Indoor, Outdoor, One Push WB, Manual WB	AUTO, ATW, Indoor, Outdoor, One Push WB, Manual WB
Gain	Auto/Manual (-3 to 28 dB, 2 dB steps)	Auto/Manual (-3 to 28 dB, 2 dB steps)
Aperture control	16 steps	16 steps
Preset	6-POSITIONS	6-POSITIONS
Serial interface	VISCA protocol (TTTL/CMOS) 9.6 Kbps, 19.2 Kbps, 38.4 Kbps, Stop bit, 1/2 bit	VISCA protocol (TTTL/CMOS) 9.6 Kbps, 19.2 Kbps, 38.4 Kbps, Stop bit, 1/2 bit
Video Output	VBS: 1.0 Vp-p (Sync negative)	VBS: 1.0 Vp-p (Sync negative)
Storage temperature/Humidity	-20°C to 60°C (-4°F to 140°F) / 20 to 95%	-20°C to 60°C (-4°F to 140°F) / 20 to 95%
Operating temperature/Humidity	0°C to 50°C (32°F to 122°F) / 20 to 80%	0°C to 50°C (32°F to 122°F) / 20 to 80%
Power requirements/Power consumption	6 to 12 V DC/1.5 W (2.5 W)	6 to 12 V DC/1.5 W (2.5 W)
Weight	230 g (8.1 oz.)	230 g (8.1 oz.)
Dimensions (w x h x d)	50.0 x 57.5 x 88.5 mm (2 x 2 3/8 x 3 1/2 inches)	50.0 x 57.5 x 88.5 mm (2 x 2 3/8 x 3 1/2 inches)

Design and specifications are subject to change without notice.

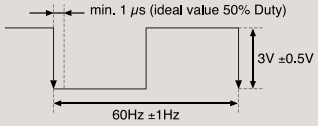
Pin Assignment



KYOCERA ELCO 00 6200 097 032 800

Pin No.	Signal	Level
1	RxD	CMOS 5.0V (low: max 0.8 V, high: min 2.0 V) Read Data
2	TxD	CMOS 5.0V (low: max 0.1 V, high: min 4.4 V) Send Data
3	GND (for RxD & TxD)	
4	DC IN	9.0 V ± 3.0 V
5	GND (for DC IN)	
6	VBS OUT	1.0 V ±0.2 V
7	GND (for VBS OUT)	
8	V LOCK PULSE	External VD-Lock Pulse (EX.FV: Negative, 3 Vp-p 50% duty)
9	GND (VL PULSE)	

V Lock Pulse



RxD, TxD: Positive TTL level

Model Differences

The main differences among the FCB-EX480C/EX480CP, FCB-EX48C/EX48CP and FCB-EX45C/EX45CP are as follows:

Function/Item	FCB-EX480C/EX480CP	FCB-EX48C/EX48CP	FCB-EX45C/EX45CP
CCD	EXview HAD	EXview HAD	Super HAD
Minimum illumination required	• 0.7 lx (f1.4, normal shutter speed) • 0.1 lx (f1.4, 1/4 s (NTSC) or 1/3 s (PAL)) • 0.01 lx or less (f1.4, 1/4 s (NTSC) or 1/3 s (PAL), ICR ON)	• 0.7 lx (f1.4, normal shutter speed) • 0.1 lx (f1.4, 1/4 s (NTSC) or 1/3 s (PAL))	• 1.01 lx (f1.4, normal shutter speed)
E-Flip	No	Yes	No
Freeze	Yes	Yes	No
Key switch	Yes	Yes	No
Y/C out	Yes	Yes	No
Slow shutter	Yes	Yes	No
Auto ICR function	Yes	No	No
ICR function	Yes	No	No
Dimensions	52.0 (w) x 57.5 (h) x 88.5 (d) mm	52.0 (w) x 57.5 (h) x 88.5 (d) mm	52.0 (w) x 57.5 (h) x 88.5 (d) mm

Colour Block Cameras

FCB-EX Series

HD Technology *1
1/4 Type EXview HAD CCD *2
1/4 Type Super HAD CCD *3
1/3 Type Super HAD CCD II *4
36x Optical Zoom *5
26x Optical Zoom *6
18x Optical Zoom *7
10x Optical Zoom *8
12x Digital Zoom *9
WIDE Dynamic *9
VISCA Protocol
Electronic FLIP
High Sensitivity Images
Spherical Privacy Zone Masking
Auto ICR *10
Slow AE Response Function
Image Stabiliser *3
Picture Freeze Function
SMART Lens Control
Video Motion Detection *1
Multi Line On Screen Display *1

FCB-EX1010/FCB-EX1010P[*1/*2/*5/*9/*10]

FCB-EX990D/FCB-EX990DP[*1/*2/*6/*9/*10]

FCB-EX490D/FCB-EX490DP[*1/*2/*7/*9/*10]

FCB-EX20D/FCB-EX20DP[*1/*4/*8/*10]

FCB-EX11D/FCB-EX11DP[*1/*2/*8]

FCB-EX1000/FCB-EX1000P[*2/*5/*10]

FCB-EX980S/FCB-EX980SP[*3/*6/*10]
FCB-EX980/FCB-EX980P[*2/*6/*10]

FCB-EX480C/FCB-EX480CP[*2/*7/*10]

FCB-EX48C/FCB-EX48CP[*2/*7]

Outline

Sony's **FCB Series** of colour block cameras offers excellent picture quality, superb flexibility, and easy operation in a variety of applications ranging from surveillance to traffic monitoring, and in many other visual communication environments.

These cameras are specifically designed to be integrated into security domes/cameras, police vehicles, photo booths, document stands, and low-vision systems. There are ten cameras in the FCB-EX Series lineup, and each incorporates a wide variety of optical zoom lenses ranging from 10x to 36x. With this breadth of choice, it's never been easier to select the right camera for your specific monitoring applications.

Optical zoom lens	36x	26x	18x	10x
FCB-EX Series Cameras	FCB-EX1010/FCB-EX1010P FCB-EX1000/FCB-EX1000P	FCB-EX990D/FCB-EX990DP FCB-EX980S/FCB-EX980SP FCB-EX980/FCB-EX980P	FCB-EX490D/FCB-EX490DP FCB-EX480C/FCB-EX480CP FCB-EX48C/FCB-EX48CP	FCB-EX20D/FCB-EX20DP FCB-EX11D/FCB-EX11DP

Comparison chart of FCB-EX D version and C version

There are two versions of FCB-EX Series cameras: D version and C version cameras. The different models vary mainly according to Wide-D technology and High Resolution mode.

Optical zoom lens	D version		C version	
	Yes	No	No	
Wide-D	FCB-EX1010/FCB-EX1010P FCB-EX990D/FCB-EX990DP FCB-EX490D/FCB-EX490DP	FCB-EX20D/FCB-EX20DP FCB-EX11D/FCB-EX11DP	FCB-EX1000/FCB-EX1000P FCB-EX980S/FCB-EX980SP FCB-EX980/FCB-EX980P	FCB-EX480C/FCB-EX480CP FCB-EX48C/FCB-EX48CP
High Resolution Mode	530 TV Lines		470 TV Lines	

Features

Wide Dynamic Range Technology

FCB-EX1010/FCB-EX1010P | FCB-EX990D/FCB-EX990DP | FCB-EX490D/FCB-EX490DP

These cameras incorporate an advanced backlight compensation technology that dramatically improves each camera's dynamic range by 128 times when compared to conventional cameras. Thanks to this new technology, users can capture clear images even in extreme high-contrast lighting environments. The cameras capture the same image twice: first with a normal shutter speed, and then with a high shutter speed. The dark areas captured at normal shutter speed and the bright areas captured at high shutter speed are then combined into one image using an advanced DSP LSI, thus clearly reproducing the original scene.

simulated image

High-resolution Images

FCB-EX1010/FCB-EX1010P | FCB-EX990D/FCB-EX990DP | FCB-EX490D/FCB-EX490DP | FCB-EX20D/FCB-EX20DP | FCB-EX11D/FCB-EX11DP

These cameras combine a Sony original DSP with a 1/4-type EXview HAD CCD® (FCB-EX20D/EX20DP: 1/3-type Super HAD™ CCD II). They achieve a high horizontal resolution of 530 TV lines, enabling reproduction of amazingly clear and detailed images.

High-sensitivity Images

ALL MODELS

All the cameras in the FCB-EX Series deliver exceptional picture quality thanks to Sony's advanced CCD technology. They provide excellent sensitivity and low smear levels.

In particular, the FCB-EX20D/20DP incorporates the newly developed Super HAD CCD II that offers ultra-high sensitivity at 0.25 lx (F1.8, 50IRE).

Auto IR-cut Filter Removal (Auto ICR)

FCB-EX1010/FCB-EX1010P | FCB-EX990D/FCB-EX990DP | FCB-EX490D/FCB-EX490DP | FCB-EX20D/FCB-EX20DP | FCB-EX1000/FCB-EX1000P | FCB-EX980S/FCB-EX980SP | FCB-EX980/FCB-EX980P | FCB-EX480C/FCB-EX480CP

The Auto ICR function incorporated in these cameras offers optimal sensitivity in both day- and night-shooting applications. At a set level of darkness, the IR-cut filter is automatically disabled (ICR ON) and the infrared sensitivity is increased. Moreover, when ICR is ON, the camera adjusts to the optimal focal point. At a set level of brightness, the filter is automatically enabled (ICR OFF).

The IR-cut filter automatically engages depending on the ambient light, allowing the camera 24/7 operation in a variety of lighting conditions.

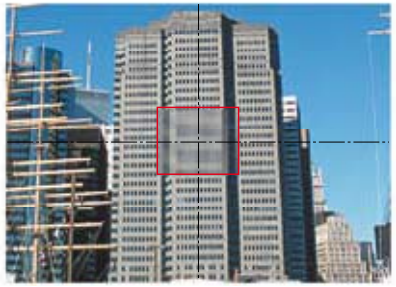
Features

Advanced Spherical Privacy Zone Masking

ALL MODELS

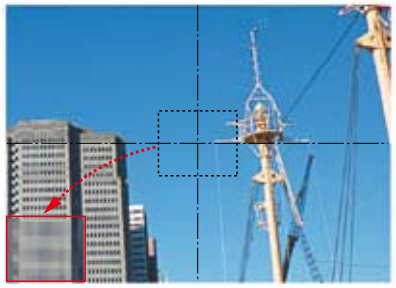
With these cameras, a maximum of eight masking areas can be displayed on the monitoring screen. Also, if these block cameras are incorporated into a Pan/Tilt/Zoom (P/T/Z) camera system, masked areas are interlocked with P/T/Z movement, regardless of the camera angle or camera movement. Up to 24 masking areas can be preset in the entire viewing range of a P/T/Z camera. Moreover, FCB-EX Series D version cameras can mask unwanted or prohibited areas within an image using a mosaic effect on top of the colour masking function.

Pan range: 0



Monitor

Pan range: 20



Monitor

Masking area

Movement of masking area

Electronic Flip (e-Flip)

ALL MODELS

All the cameras in the FCB-EX Series have an e-Flip function that electronically flips an image upside down so that it is displayed on the monitor accurately. In a dome application, for example, if a tracked object moves beneath the camera dome, the image is inverted to maintain the correct orientation.

Slow AE Response Function

ALL MODELS

All of the cameras in the FCB-EX Series are equipped with a Slow AE response function to automatically slow the rate at which camera exposure levels change. The rate can be set up to 32 times slower than when Full-auto AE or Priority (shutter/iris) modes are selected. This function is beneficial when monitoring areas in which lighting conditions change abruptly such as underground parking lots.

Image Stabiliser

FCB-EX980S/FCB-EX980SP

The image stabiliser function in these cameras minimizes the appearance of shaky images caused by low-frequency vibration, and maintains a normal horizontal resolution. This function is useful for outdoor surveillance and traffic monitoring applications.

Multi-line On-screen Display

FCB-EX1010/FCB-EX1010P | FCB-EX990D/FCB-EX990DP | FCB-EX490D/FCB-EX490DP | FCB-EX20D/FCB-EX20DP | FCB-EX11D/FCB-EX11DP

With these cameras, up to eleven lines with 20 characters per line can be displayed on the monitoring screen using VISCA commands. Users can freely display captions on the screen such as the monitoring location, camera name, and alarm messages, providing operators with a user-friendly interface.

Video Motion Detection

FCB-EX1010/FCB-EX1010P | FCB-EX990D/FCB-EX990DP | FCB-EX490D/FCB-EX490DP | FCB-EX20D/FCB-EX20DP | FCB-EX11D/FCB-EX11DP

These cameras incorporate a video motion detection function. When motion is detected within an area of the picture designated by the user, an alarm signal is output via the camera's control interface using the VISCA protocol. Users can designate up to four detecting areas freely from any of eight vertical and twelve horizontal blocks.

Picture Freeze

ALL MODELS

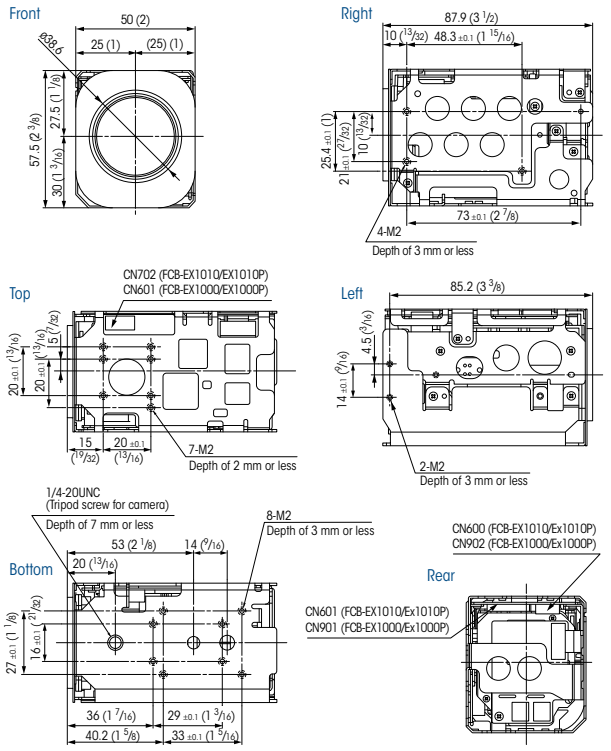
All of the cameras in the FCB-EX Series are equipped with a Picture Freeze function that allows for the output of a still image while the camera is panning, tilting, zooming, focusing, initialising the lens, or performing preset operations. For example, the camera will output a still image before it begins to pan, tilt, or zoom, and once the operation is completed, the camera continues to display images that are currently being monitored. In this way, unnecessary images are not displayed.

SMART (Sony Modular Automatic Lens Reset Technology) Lens Control

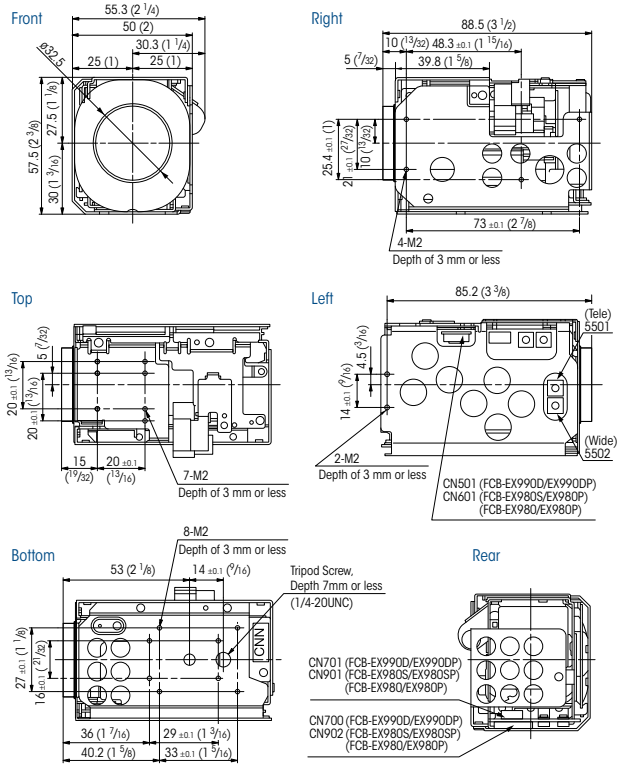
ALL MODELS

All of the cameras in the FCB-EX Series feature this function. Each incorporates SMART Lens Control technology, which monitors the focus position of the lens while zooming, and automatically compensates for any mechanical misalignment that may occur over long periods of continuous usage. With this beneficial feature, periodic lens initialisation is no longer required during continuous 24-hour operation.

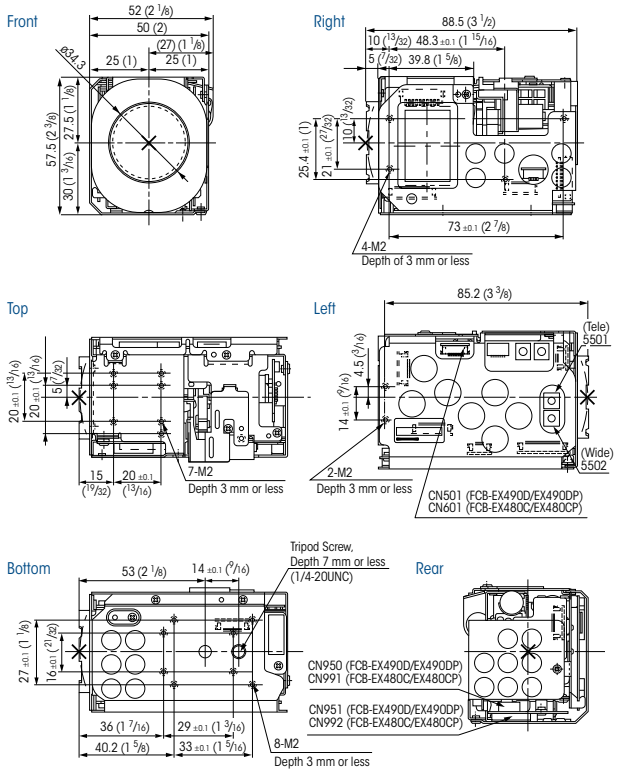
Dimensions (mm)



FCB-EX1010/FCB-EX1010P | FCB-EX1000/FCB-EX1000P

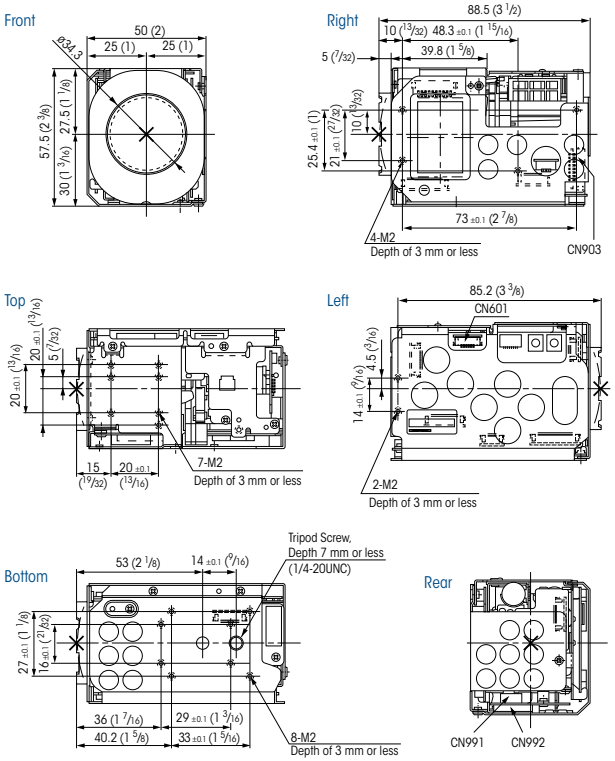


FCB-EX990D/FCB-EX990DP | FCB-EX980S/FCB-EX980SP | FCB-EX980/FCB-EX980P

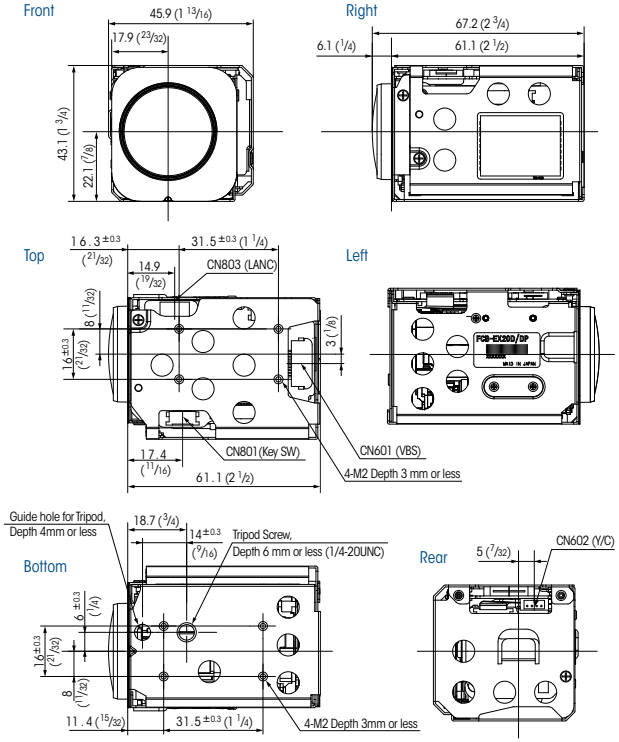


FCB-EX490D/FCB-EX490DP | FCB-EX480C/FCB-EX480CP

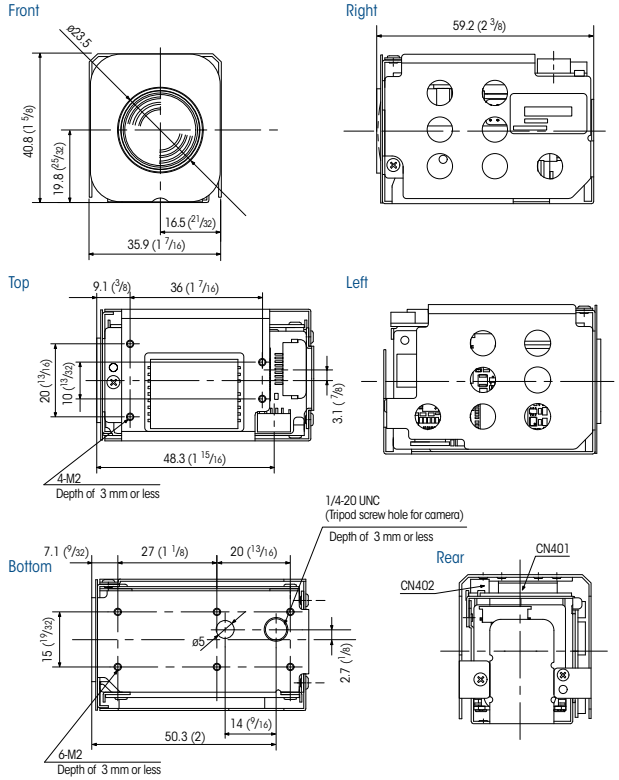
Dimensions (mm)



FCB-EX48C/FCB-EX48CP



FCB-EX20D/FCB-EX20DP



FCB-EX11D/FCB-EX11DP

Pin Assignment

4-pin for Y/C Video Out

CN600 FCB-EX1010/FCB-EX1010P
CN700 FCB-EX990D/FCB-EX990DP
CN950 FCB-EX490D/FCB-EX490DP
CN602 FCB-EX20D/FCB-EX20DP
CN402 FCB-EX11D/FCB-EX11DP
CN902 FCB-EX1000/FCB-EX1000P
FCB-EX980S/FCB-EX980SP
FCB-EX980/FCB-EX980P
CN991 FCB-EX480C/FCB-EX480CP
FCB-EX48C/FCB-EX48CP

Pin No.	Name	Level
1	Y_OUT	1.0 Vp-p (75 Ω terminate) Luminance signal
2	GND (for Y signal)	–
3	C_OUT	Chrominance signal
4	GND (for C signal)	–

Connector: JST S4B-ZR-SM4A-TF (LF)

9-pin for DC/Video Out

CN601 FCB-EX1010/FCB-EX1010P
CN701 FCB-EX990D/FCB-EX990DP
CN951 FCB-EX490D/FCB-EX490DP
CN601 FCB-EX20D/FCB-EX20DP
CN401 FCB-EX11D/FCB-EX11DP
CN901 FCB-EX1000/FCB-EX1000P
FCB-EX980S/FCB-EX980SP
FCB-EX980/FCB-EX980P
CN992 FCB-EX480C/FCB-EX480CP
FCB-EX48C/FCB-EX48CP

Pin No.	Name	Level
1	RxD	TTL/CMOS Level Read Data
2	TxD	TTL/CMOS Level Send Data
3	GND (for RxD & TxD)	–
4	DC IN	9.0 V ±3.0 V
5	GND (for DC IN)	
6	VBS OUT	1.0 Vp-p (75 Ω terminate)
7	GND (for VBS OUT)	
8	V LOCK PULSE	External VD-Lock Pulse (Negative, 3.0 Vp-p 50% duty)
9	GND (for V LOCK PULSE)	–

Connector: KYOCERA ELCO 00 6200 509 130 000+

9-pin for DC IN/VBS Y/C Out connector

CN903 FCB-EX480C/FCB-EX480CP
FCB-EX48C/FCB-EX48CP

Pin No.	Name	Level
1	DC IN	9.0 V ±3.0 V
2	GND (for DC IN)	
3	NC	
4	VBS OUT	1.0 V ±0.2 V
5	GND (for VBS OUT)	
6	Y Out	1.0 V ±0.2 V
7	GND (for Y signal)	
8	C Out	
9	GND (for C signal)	

J.S.T.Mfg Co. S9B-ZR-SM4A-TF (LF)

12-pin for Key Switch Control

CN702 FCB-EX1010/FCB-EX1010P
CN501 FCB-EX990D/FCB-EX990DP
FCB-EX490D/FCB-EX490DP
CN801 FCB-EX20D/FCB-EX20DP
CN601 FCB-EX1000/FCB-EX1000P
FCB-EX980S/FCB-EX980SP
FCB-EX980/FCB-EX980P
FCB-EX480C/FCB-EX480CP
FCB-EX48C/FCB-EX48CP

Pin No.	Name	Level
1	GND	–
2	GND	–
3	KEY_AD0	Pull up to 3.0 V by 100 kΩ
4	KEY_AD1	Pull up to 3.0 V by 100 kΩ
5	KEY_AD2	Pull up to 3.0 V by 100 kΩ
6	KEY_AD3	Pull up to 3.0 V by 100 kΩ
7	KEY_AD4	Pull up to 3.0 V by 100 kΩ
8	KEY_AD5	Pull up to 3.0 V by 100 kΩ
9	KEY_AD6	Pull up to 3.0 V by 100 kΩ
10	KEY_AD7	Pull up to 3.0 V by 100 kΩ
11	NC	–
12	Strobe	Strobe timing pulse (0 to 3.0 V)

Connector: KYOCERA ELCO 08 6222 012 101 848+

Specifications

FCB-EX Series D Version

	FCB-EX1010	FCB-EX1010P	FCB-EX990D	FCB-EX990DP	FCB-EX490D	FCB-EX490DP	FCB-EX20D	FCB-EX20DP	FCB-EX11D	FCB-EX11DP
Image sensor	1/4-type EXview HAD CCD		1/4-type EXview HAD CCD		1/4-type EXview HAD CCD		1/3-type Super HAD CCD II		1/4-type EXview HAD CCD	
Signal system	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
Effective picture elements	Approx. 380,000 pixles	Approx. 440,000 pixels	Approx. 380,000 pixles	Approx. 440,000 pixels	Approx. 380,000 pixles	Approx. 440,000 pixels	Approx. 380,000 pixles	Approx. 440,000 pixels	Approx. 380,000 pixles	Approx. 440,000 pixels
Horizontal resolution	High Resolution Mode On: 530 TV lines (default) High Resolution Mode Off: 470 TV lines (NTSC)/460 TV lines (PAL)									
Lens	36x optical zoom, f =3.4 mm (wide) to 122.4 mm (tele), F1.6 to F4.5		26x optical zoom, f=3.5 mm (wide) to 91.0 mm (tele), F1.6 to F3.8		18x optical zoom, f=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0		10x optical zoom, f =5.1 mm (wide) to 51.0 mm (tele), F1.8 to F2.1		10 x optical zoom, f=4.2 mm (wide) to 42.0 (tele), F1.8 to F2.9	
Digital zoom	12x (432x with optical zoom)		12x (312x with optical zoom)		12x (216 x with optical zoom)		12x (120x with optical zoom)			
Horizontal angle of view	57.8°(wide) to 1.7° (tele)		54.2°(wide) to 2.2°(tele)		48.0°(wide) to 2.8° (tele)		52.0°(wide) to 5.4° (tele)		46.0° (wide) to 4.6° (tele)	
TV distortion	–						4.5%		–	
Minimum object distance	320 mm (wide) to 1500 mm (tele)				290 mm (wide) to 800 mm (tele)		15 mm (wide) to 800 mm (tele)		200 mm (wide) to 1.0 m (tele)	
Sync system	Internal/External (V-Lock)									
Minimum illumination	1/60 s mode: 1.4 lx (typical) (F1.6, 50 IRE) 1/4 s mode: 0.1 lx (typical) (F1.6, 50 IRE)		1/60 s mode: 1.0 lx (typical) (F1.6, 50 IRE) 1/4 s mode: 0.09 lx (typical) (F1.6, 50 IRE)		1/60 s mode: 0.7 lx (typical) (F1.4, 50 IRE) 1/4 s mode: 0.07 lx (typical) (F1.4, 50 IRE)		1/60 s, 1/50 s mode: 0.25 lx (typical) (F1.8, 50 IRE) 1/4 s, 1/3 s mode: 0.015 lx (typical) (F1.8, 50 IRE) 1/4 s, 1/3 s mode & ICR On: 0.0004 lx (typical) (F1.8, 50 IRE)		1.0 lx (typical) (F1.8, 50 IRE)	
Auto ICR	✓								–	
Image stabilizer	–									
Video motion detection	✓									
Multi-line OSD	✓ (Up to eleven lines with 20 characters per line)									
Slow AE response	✓									
E-flip	✓									
Picture freeze	✓									
Slow shutter	✓									
Video output	VBS: 1.0 Vp-p (sync negative), Y/C									
Camera control interface	VISCA (TTL signal level), baud rate: 9.6 kb/s, 19.2 kb/s, 38.4 kb/s, 1 or 2 stop-bit selectable									
S/N ratio	More than 50 dB									
Electronic shutter	1/1 to 1/10,000 s, 22 steps									
White balance	AUTO, ATW, Indoor, Outdoor, One-push, Manual									
Gain	Auto/Manual (-3 to 28 dB, 2 dB steps)									
AE control	Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Back light compensation, Slow AE									
Wide dynamic range	✓ (On/Off)						–			
Backlight compensation	✓ (On/Off)									
Privacy zone masking	✓ (On/Off) (8 masks per view/24 masks preset in the entire viewing range when integrated into a PTZ camera- 14 colours, mosaic)									
Character generator	Mode display/Multi-line OSD (OSD has priority over Mode display)									
Flicker cancel	✓ (Auto)	–	✓ (Auto)	–	✓ (Auto)	–	✓ (Auto)	–	✓ (Auto)	–
Focusing system	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF									
Picture effects	E-flip, Nega Art, Black & White, Mirror Image									
Zoom switch	Tele, Wide									
Storage temperature	-20 to 60 °C (-4 to 140 °F)									
Operating temperature	0 to 50 °C (32 to 122 °F)									
Power requirements	DC 6 to 12 V									
Power consumption	2.6 W (motors inactive), 4.9 W (motors active)		2.6 W (motors inactive), 5.4 W (motors active)		2.6 W (motors inactive), 4.4 W (motors active)		2.8W (motors inactive), 6.5 W (motors active)		1.9 W (motors inactive), 2.8 W (motors active)	
Mass	230 g (8.1 oz)						140 g (5 oz)		95 g (3.3 oz)	
Dimensions	50.0 x 57.5 x 87.9 mm (2 x 2 3/8 x 3 1/2 inches)		55.3 x 57.5 x 88.5 mm (2 x 2 3/8 x 3 1/2 inches)		52.0 x 57.5 x 88.5 mm (2 1/8 x 2 3.8 x 3 1/2 inches)		45.9 x 43.1 x 67.2 mm (1 13/16 x 1 3/4 x 2 3/4 inches)		35.9 mm x 40.8 mm x 59.2 mm (1 7/16 x 1 5/8 x 2 3/8 inches)	

Specifications

FCB-EX Series C Version

	FCB-EX1000	FCB-EX1000P	FCB-EX980S	FCB-EX980SP	FCB-EX980	FCB-EX980P	FCB-EX480C	FCB-EX480CP	FCB-EX48C	FCB-EX48CP
Image sensor	1/4-type Exview HAD CCD		1/4-type Super HAD CCD		1/4-type EXview HAD CCD		1/4-type EXview HAD CCD		1/4-type EXview HAD CCD	
Signal system	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
Effective picture elements	Approx. 380,000 pixels	Approx. 440,000 pixels	Approx. 680,000 pixels	Approx. 800,000 pixels	Approx 380,000 pixels	Approx. 440,000 pixels	Approx. 380,000 pixels	Approx. 440,000 pixels	Approx. 380,000 pixels	Approx. 440,000 pixels
Horizontal resolution	470 TV lines	460 TV lines	470 TV lines	460 TV lines	470 TV lines	460 TV lines	470 TV lines	460 TV lines	470 TV lines	460 TV lines
Lens	36x optical zoom, f =3.4 mm (wide) to 122.4 mm (tele), F1.6 to F4.5		26 x optical zoom, f=3.5 mm (wide) to 91.0 mm (tele), F1.6 to F3.8				18 x optical zoom, f=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0			
Digital zoom	12x (432x with optical zoom)		12x (312x with optical zoom)				12 x (216 x with optical zoom)			
Horizontal angle of view	57.8°(wide) to 1.7° (tele)		42.2° (wide) to 1.6°(tele)		54.2° (wide) to 2.2° (tele)		48.0°(wide) to 2.8°(tele)			
Minimum object distance	320 mm (wide) to 1500 mm (tele)		35 mm (wide) to 800 mm (tele)							
Sync system	Internal/External (V-Lock)									
Minimum illumination	1/60 s mode: 1.4 lx (typical) (F1.6, 50 IRE) 1/4 s mode: 0.1 lx (typical) (F1.6, 50 IRE)		2.0 lx (typical) (F1.6, 50 IRE)		1.0 lx (typical) (F1.6, 50 IRE)		0.7 lx (typical) (F1.4, 50 IRE)			
Auto ICR	✓								–	
Image stabilizer	–		✓		–					
Video motion detection	–						–			
Multi-line OSD	–									
Slow AE response	✓		–							
E-flip	✓									
Picture freeze	✓									
Slow shutter	✓									
Video output	VBS: 1.0 Vp-p (sync negative), Y/C									
Camera control interface	VISCA (TTL signal level), baud rate: 9.6 kb/s, 19.2 kb/s, 38.4 kb/s, 1 or 2 stop-bit selectable									
S/N ratio	More than 50 dB (weight ON)									
Electronic shutter	1/1 to 1/10,000 s, 22 steps									
White balance	AUTO, ATW, Indoor, Outdoor, One-push, Manual									
Gain	Auto/Manual (-3 to 28 dB, 2 dB steps)									
AE control	Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Backlight compensation, Slow AE									
Wide dynamic range	–									
Backlight compensation	✓ (On/Off)									
Privacy zone masking	On/Off (24 positions) (without mosaic effects)									
Character generator	Mode display									
Flicker cancel	✓ (Auto)	–	✓ (Auto)	–	✓ (Auto)	–	✓ (Auto)	–	✓ (Auto)	–
Focusing system	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF									
Picture effects	e-Flip, Nega Art, Black & White, Mirror Image									
Zoom switch	Tele/Wide									
Storage temperature	-20 to 60 °C (-4 to 140°F)									
Operating temperature	0 to 50 °C (32 to 122°F)									
Power requirements	6 to 12 V									
Power consumption	1.6 W (motor inactive), 4.0 W (motors active)		1.6 W (motors inactive), 3.3 W (motors active)				1.6 W (motors inactive), 2.5 W (motors active)			
Mass	230 g (8.1 oz)									
Dimensions	50.0 x 57.5 x 87.9 mm (2 x 2 3/8 x 3 1/2 inches)		55.3 x 57.5 x 88.5 mm (2 1/4 x 2 3/8 x 3 1/2 inches)				52.0 x 57.5 x 88.5 mm (2 1/8 x 2 3/8 x 3 1/2 inches)			

FCB-PV Series

FCB-PV480	26
FCB-PV10	26

Colour Camera Block

FCB-PV480
FCB-PV10

1/4 Type Super HAD CCD
10x Optical Zoom *1
18x Optical Zoom
Progressive Scan
Built-in Zoom Lens
Alarm Function
Auto ICR *2
Near Infrared Sensitivity
Backlight Compensation
Electronic FLIP
Picture Freeze Function
Privacy Zone Masking
Slow Shutter
SPOT AE Function
VISCA Protocol

*1: FCB-PV10 Only
*2: FCB-PV480 Only

FCB-PV480

FCB-PV10

Outline

New high quality Sony **FCB-PV** Progressive Scan colour block cameras expand application solutions by combining renowned Sony FCB picture quality and a digital video interface.

The popular Sony FCB color block camera series are used in a variety of applications ranging from surveillance to traffic monitoring and in many other visual communication environments. These cameras are specifically designed to easily integrate into security domes, police vehicles, photo booths, document stands, videoconferencing, and low vision systems.

Sony is expanding its FCB camera series to include for the first time Progressive Scan (PS) colour block models. The FCB-PV Series features Progressive Scan CCD technology with square pixels, Primary Colour filters for precise colour reproduction, and a digital YUV 4:2:2 interface. The new FCB-PV480 colour block camera incorporates a 1/4-type Super HADTM PS CCD with an 18x optical zoom lens. The ultra-compact FCB-PV10 colour block camera incorporates a 1/4-type Super HAD PS CCD with a 10x optical zoom lens. In addition, the FCB-PV480 camera can operate with a minimum illumination of 1.6 lux and is equipped with Auto ICR (IR cut filter removal) for near-infrared sensitivity. Both cameras output a VGA size image (640 x 480) and offer frame rates of 29.97 or 25 fps (switchable).

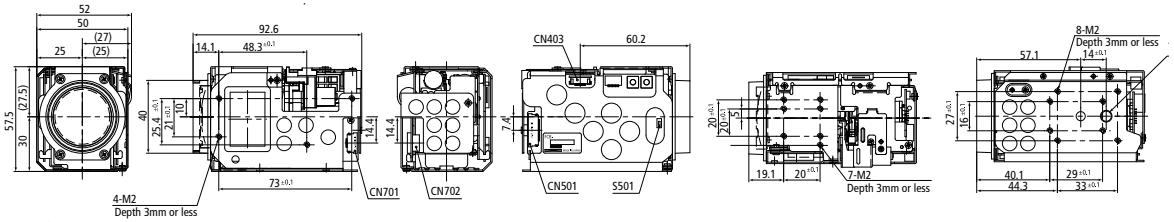
These FCB-PV cameras are the perfect match for IP camera applications that require a direct digital video connection. With their digital video interface, the FCB-PV series enables OEMs to easily integrate these cameras with fewer conversions such as A/D and I/P (interlace to progressive) in their systems, resulting in outstanding image quality and lower system cost.

The new Sony FCB-PV Series combines unique features with many convenient functions inherited from previous FCB models. These FCB-PV cameras are an optimum solution for high-speed shooting applications, such as traffic monitoring, license plate capture, and monitoring from mobile police vehicles, thanks to its progressive scan CCD sensor that produces high-quality images with crisp edges. These FCB-PV cameras are also a powerful solution when it comes to still image applications.
With their Primary Colour filters and square pixel CCD, the FCB-PV cameras achieve precise colour reproduction and exceptional picture quality - a must for videoconferencing, low vision, photo booths, and document stands.

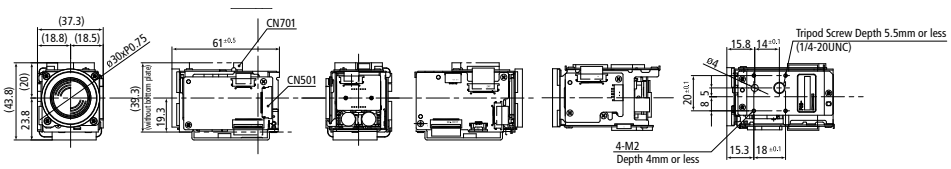
Features

- **Progressive Scan colour block camera with auto focus zoom lens**
- **1/4-type Super HAD CCD – approximately 330,000 pixels**
- **Excellent colour reproduction with primary colour filters**
- **18x optical zoom capability – FCB-PV480 10x optical zoom capability – FCB-PV10**
- **Clear capture of moving objects – sharp, clean edges**
- **Auto IR-Cut filter removal (ICR) – FCB-PV480 only**
- **Advanced spherical privacy zone masking function with mosaic effect**

Dimensions (mm)



FCB-PV480



FCB-PV10

Features

- **Electronic Shutter/Slow shutter (long time exposure)**
- **High-Speed serial interface (max. 38.4 Kb/s) and TTL signal-level control (VISCATM protocol)**
- **Various customisable Settings**
- **Internal sync.**
- **Low power consumption (1.6 W when motors are inactive)**
- **16-Bytes of available memory for recording data such as product serial number**
- **High-Quality images**

1/4-type Super HAD CCD with primary colour Filters and square pixels

Adopting a 1/4-type Super HAD CCD with Primary Colour filters and Square Pixels, the FCB-PV block cameras deliver exceptional picture quality, excellent colour reproduction and eliminate the need for pixel-size conversion.

Clear Progressive Scan images (fig. 1)

The FCB-PV camera series incorporate progressive scan technology that can help eliminate blurred, illegible characters and jagged edges. For example, this technology is useful in traffic surveillance applications that require the capture of a car license plate image, or with low vision systems that require written or typed documents to be moved.

SONY FCB-PV Cameras

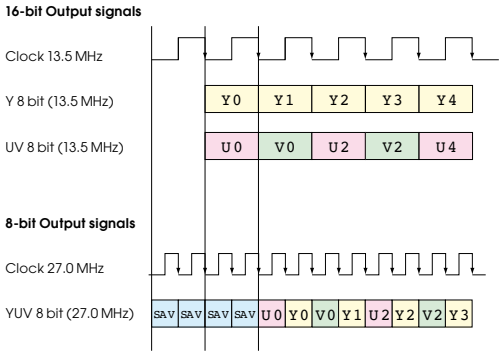
Conventional Cameras

Fig. 1 Image Comparison Between SONY FCB-PV Cameras and Conventional Cameras

Versatile digital interfaces with selectable modes

The FCB-PV Series comes equipped with a digital interface. For output flexibility, these cameras offer YUV 4:2:2 signals in six selectable modes as shown in the table below:

I/F Mode	Output	SYNC	Frame Rate	Clock
16-bit Progressive	YUV	HSYNC/VSYNC	29.97 frames/sec	13.5 MHz
Word Parallel, Bit Parallel	16-bit 4:2:2		25.0 frames/sec	
8-bit Progressive	YUV	HSYNC/VSYNC	29.97 frames/sec	27.0 MHz
Word Serial, Bit Parallel	8-bit 4:2:2	SAV/EAV	25.0 frames/sec	
8-bit Progressive	YUV	HSYNC/VSYNC	59.94 frames/sec	27.0 MHz
Word Serial, Bit Parallel	8-bit 4:2:2	SAV/EAV	50.0 frames/sec	


16-bit Output signals
Clock 13.5 MHz
Y 8 bit (13.5 MHz)
Y0 Y1 Y2 Y3 Y4
UV 8 bit (13.5 MHz)
U0 V0 U2 V2 U4
8-bit Output signals
Clock 27.0 MHz
YUV 8 bit (27.0 MHz)
SAV SAV SAV SAV U0 Y0 V0 Y1 U2 Y2 V2 Y3

Alarm functions

The FCB-PV Series provides an alarm function that detects changes in the AF, AE, or both AF and AE levels of an image and outputs an alarm signal as required to external equipment via its control interface using the VISCA protocol. This feature is ideal for automatically performing functions such as sounding an audible alarm or triggering an electric strike to lock or unlock a door when focus or luminance levels change.

These cameras are also equipped with a Spot AE function that allows them to detect changes in AE levels of designated areas of the images, and output an alarm signal accordingly. Users can designate multiple detecting areas from any of 16 vertical and 16 horizontal blocks.

In addition, these cameras feature a DAY/NIGHT mode that can output an alarm signal via the VISCA protocol in response to a change in the designated brightness/darkness level.

Enhanced spherical privacy zone masking with mosaic effect (fig. 2)

With the FCB-PV Series, unwanted or prohibited areas within an image can be masked with a mosaic effect in addition to conventional colour masking with colors such as black, grey, white, red, green, blue, cyan, yellow and magenta. The prohibited areas are interlocked with Pan/Tilt/Zoom movements for comprehensive masking. A maximum of 24 masking areas can be preset to any of 160 horizontal and 120 vertical masking blocks. In addition, up to eight masking presets can be set for a specific image. A maximum of two different colours (including the mosaic pattern) can be displayed in a single image.

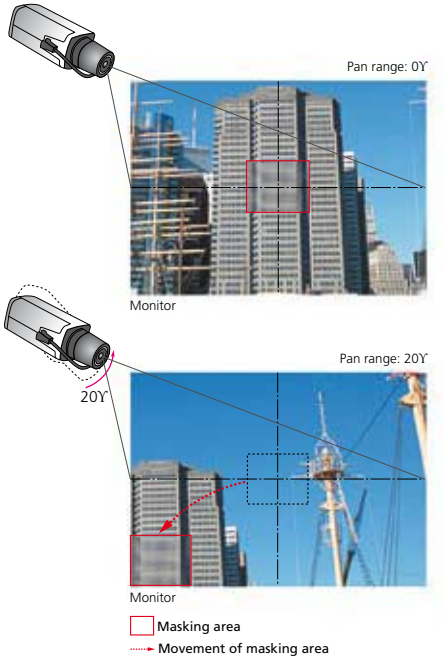


Fig. 2 Enhanced Spherical Privacy Zone Masking with Mosaic Effect

Features

Electronic-Flip (E-Flip) (fig. 3)

The FCB-PV cameras have an E-Flip function that electronically flips an image upside down so that it is displayed on the monitor accurately. In a dome application for example, if a tracked object moves beneath the camera dome, the image can be inverted to maintain the correct orientation.

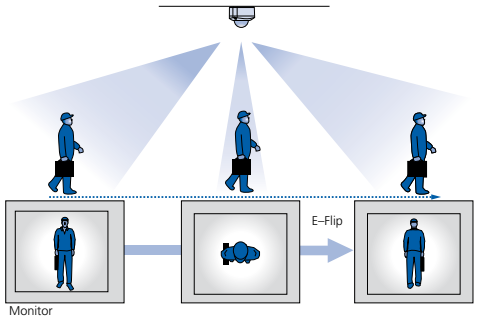


Fig. 3 E-Flip Function

Auto IR Cut Filter removal (ICR) (FCB-PV480 only)

For optimised sensitivity in both day and night-time shooting applications, the FCB-PV480 camera incorporates an Auto ICR function. With a set level of darkness, the IR Cut filter is automatically disabled (ICR ON) and the infrared sensitivity is increased. With a set level of brightness, the filter is automatically enabled (ICR OFF). The ICR automatically engages depending on the ambient light, allowing the camera to be effective in a variety of lighting conditions.

Picture Freeze*1

The FCB-PV Series is equipped with a Picture Freeze function that allows for the output of a still image while the camera is panning, tilting, zooming, focusing, initializing the lens, or performing preset operations. For example, the camera will output a still image before it begins to pan, tilt, or zoom, and once the operation is completed, the camera continues to display images; unnecessary images are not displayed.

*1 A change to the default setting is required to activate this function.

Spot AE

The AE area of the FCB-PV Series is selected from one of the 16 vertical/16 horizontal blocks of the image to optimise brightness within the desired area.

Environmentally friendly lead-free design

The FCB-PV Series uses lead-free solder and halogen-free printed circuit boards.

Pin Assignment

FCB-PV480

CN501 24P FFC for Digital Image Data

Pin No.	Name	16 bit data bus	Level	8 bit data bus	Level
1	GND	Signal Ground	–	–	–
2	Y0	Digital Y-Out 0	0 – 3.3 Vp-p	Digital Out 0	0 – 3.3 Vp-p
3	Y1	Digital Y-Out 1	0 – 3.3 Vp-p	Digital Out 1	0 – 3.3 Vp-p
4	Y2	Digital Y-Out 2	0 – 3.3 Vp-p	Digital Out 2	0 – 3.3 Vp-p
5	Y3	Digital Y-Out 3	0 – 3.3 Vp-p	Digital Out 3	0 – 3.3 Vp-p
6	Y4	Digital Y-Out 4	0 – 3.3 Vp-p	Digital Out 4	0 – 3.3 Vp-p
7	Y5	Digital Y-Out 5	0 – 3.3 Vp-p	Digital Out 5	0 – 3.3 Vp-p
8	Y6	Digital Y-Out 6	0 – 3.3 Vp-p	Digital Out 6	0 – 3.3 Vp-p
9	Y7	Digital Y-Out 7	0 – 3.3 Vp-p	Digital Out 7	0 – 3.3 Vp-p
10	GND	Signal Ground	–	–	–
11	C0	Digital C-Out 0	0 – 3.3 Vp-p	Hi imp	–
12	C1	Digital C-Out 1	0 – 3.3 Vp-p	Hi imp	–
13	C2	Digital C-Out 2	0 – 3.3 Vp-p	Hi imp	–
14	C3	Digital C-Out 3	0 – 3.3 Vp-p	Hi imp	–
15	C4	Digital C-Out 4	0 – 3.3 Vp-p	Hi imp	–
16	C5	Digital C-Out 5	0 – 3.3 Vp-p	Hi imp	–
17	C6	Digital C-Out 6	0 – 3.3 Vp-p	Hi imp	–
18	C7	Digital C-Out 7	0 – 3.3 Vp-p	Hi imp	–
19	GND	Signal Ground	–	–	–
20	VSYNC	Vertical SYNC	0 – 3.3 Vp-p	–	0 – 3.3 Vp-p
21	HSYNC	Horizontal SYNC	0 – 3.3 Vp-p	–	0 – 3.3 Vp-p
22	GND	Signal Ground	–	–	–
23	CLOCK	Clock signal	0 – 3.3 Vp-p	–	0 – 3.3 Vp-p
24	GND	Signal Ground	–	–	–

Connector: KYOCERA ELCO 046240024006848+ (0.5 mm)

CN701 10P FFC for Power and Communication

Pin No.	Name		Level
1	UNREG	Power Input	6.0 – 12.0 V (dc)
2	UNREG	Power Input	6.0 – 12.0 V (dc)
3	UNREG	Power Input	6.0 – 12.0 V (dc)
4	UNREG	Power Input	6.0 – 12.0 V (dc)
5	GND	Ground	–
6	GND	Ground	–
7	GND	Ground	–
8	GND	Ground	–
9	TD	–	TTL level (0 – 5.0 Vp-p)
10	SD	–	TTL level (0 – 5.0 Vp-p)

Connector: KYOCERA ELCO 046240010006848+ (0.5 mm)

CN702 4P-4P Harness for Power and Communication

Pin No.	Name		Level
1	UNREG	Power Input	6.0 – 12.0 V (dc)
2	GND	Ground	–
3	TD	–	TTL level (0 – 5.0 Vp-p)
4	RD	–	TTL level (0 – 5.0 Vp-p)

Connector: J.S.T. Mfg Co. S4B-ZR-SM4A-TF(LF)

CN403 12P FFC for Key Switch Control

Pin No.	Name	Level
1	GND	–
2	GND	–
3	KEY_AD0	Pull up to 3.0 V by 100 kΩ
4	KEY_AD1	Pull up to 3.0 V by 100 kΩ
5	KEY_AD2	Pull up to 3.0 V by 100 kΩ
6	KEY_AD3	Pull up to 3.0 V by 100 kΩ
7	KEY_AD4	Pull up to 3.0 V by 100 kΩ
8	KEY_AD5	Pull up to 3.0 V by 100 kΩ
9	KEY_AD6	Pull up to 3.0 V by 100 kΩ
10	KEY_AD7	Pull up to 3.0 V by 100 kΩ
11	NC	–
12	Strobe	Strobe timing pulse (0 to 3.0 V)

Connector: KYOCERA ELCO 086222012101848+ (0.5 mm)

FCB-PV10

CN501 24P FFC for Digital Image Data

Pin No.	Name	18 bit data bus	Level	8 bit data bus	Level
1	GND	Signal Ground	–	–	–
2	Y0	Digital Y-Out 0	0 – 3.3 Vp-p	Digital Out 0	0 – 3.3 Vp-p
3	Y1	Digital Y-Out 1	0 – 3.3 Vp-p	Digital Out 1	0 – 3.3 Vp-p
4	Y2	Digital Y-Out 2	0 – 3.3 Vp-p	Digital Out 2	0 – 3.3 Vp-p
5	Y3	Digital Y-Out 3	0 – 3.3 Vp-p	Digital Out 3	0 – 3.3 Vp-p
6	Y4	Digital Y-Out 4	0 – 3.3 Vp-p	Digital Out 4	0 – 3.3 Vp-p
7	Y5	Digital Y-Out 5	0 – 3.3 Vp-p	Digital Out 5	0 – 3.3 Vp-p
8	Y6	Digital Y-Out 6	0 – 3.3 Vp-p	Digital Out 6	0 – 3.3 Vp-p
9	Y7	Digital Y-Out 7	0 – 3.3 Vp-p	Digital Out 7	0 – 3.3 Vp-p
10	GND	Signal Ground	–	–	–
11	C0	Digital C-Out 0	0 – 3.3 Vp-p	Hi imp	–
12	C1	Digital C-Out 1	0 – 3.3 Vp-p	Hi imp	–
13	C2	Digital C-Out 2	0 – 3.3 Vp-p	Hi imp	–
14	C3	Digital C-Out 3	0 – 3.3 Vp-p	Hi imp	–
15	C4	Digital C-Out 4	0 – 3.3 Vp-p	Hi imp	–
16	C5	Digital C-Out 5	0 – 3.3 Vp-p	Hi imp	–
17	C6	Digital C-Out 6	0 – 3.3 Vp-p	Hi imp	–
18	C7	Digital C-Out 7	0 – 3.3 Vp-p	Hi imp	–
19	GND	Signal Ground	–	–	–
20	VSYNC	Vertical SYNC	0 – 3.3 Vp-p	–	0 – 3.3 Vp-p
21	HSYNC	Horizontal SYNC	0 – 3.3 Vp-p	–	0 – 3.3 Vp-p
22	GND	Signal Ground	–	–	–
23	CLOCK	Clock signal	0 – 3.3 Vp-p	–	0 – 3.3 Vp-p
24	GND	Signal Ground	–	–	–

Connector: KYOCERA ELCO 046240024006848+ (0.5 mm)

CN701 4P-4P Harness for Power and Communication

Pin No.	Name		Level
1	UNREG	Power Input	6.0 – 12.0 V (dc)
2	GND	Ground	–
3	TD	–	TTL level (0 – 5.0 Vp-p)
4	RD	–	TTL level (0 – 5.0 Vp-p)

Connector: J.S.T. Mfg Co. S4B-ZR-SM4A-TF(LF)

Specifications

	FCB-PV480	FCB-PV10
Image sensor	1/4-type Super HAD CCD	1/4-type Super HAD CCD
Number of total pixels	Approx. 330,000 pixels (659(H) x 494(V))	Approx. 330,000 pixels (659(H) x 494(V))
Image size	VGA (640 x 480)	VGA (640 x 480)
Lens	18x zoom, f=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0	10x zoom, f=4.2 mm (wide) to 42.0 mm (tele), F1.8 to F2.9
Viewing Angle (H)	48° (wide end) to 2.8° (tele end)	46° (wide end) to 4.6° (tele end)
Minimum working distance	290 mm (wide end), 800 mm (tele end)	10 mm (wide end), 1,000 mm (tele end)
Sync system	Internal	Internal
Minimum illumination	1.6 lx (F1.4, 50 IRE)	2.3 lx (F1.8, 50 IRE)
S/N ratio	More than 50 dB	More than 50 dB
Electronic shutter	1/1 to 1/10,000 s (22 steps)	1/1 to 1/10,000 s (22 steps)
White balance	Auto, ATW, Indoor, Outdoor, One-push, Manual	Auto, ATW, Indoor, Outdoor, One-push, Manual
Gain	Auto / Manual (-3 to 28 dB, 2 dB steps)	Auto / Manual (-3 to 28 dB, 2 dB steps)
AE control	Auto, Manual, Priority mode (shutter priority & iris priority), Bright	Auto, Manual, Priority mode (shutter priority & iris priority), Bright
Backlight compensation	On/Off	On/Off
Privacy zone masking	On/Off (24 positions)	On/Off (24 positions)
Focusing system	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF
Picture effects	E-Flip, Black & White, Mirror Image	E-Flip, Black & White, Mirror Image
Video output	YUV 4:2:2 (16-bit/13.5 MHz or 8-bit/ 27.0 MHz)	YUV 4:2:2 (16-bit/13.5 MHz or 8-bit/ 27.0 MHz)
Camera control interface	VISCA (TTL signal level), baud rate: 9.6 Kb/s, 19.2 Kb/s, 38.4 Kb/s, 1 or 2 stop bit selectable	VISCA (TTL signal level), baud rate: 9.6 Kb/s, 19.2 Kb/s, 38.4 Kb/s, 1 or 2 stop bit selectable
Storage temperature	-20°C to 60°C (-4 to 140°F)	-20°C to 60°C (-4 to 140°F)
Operating temperature	0°C to 50°C (32 to 122°F)	0°C to 50°C (32 to 122°F)
Power consumption	6.0 V to 12.0 V DC 1.5 W (motors inactive), 2.7 W (motors active)	6.0 V to 12.0 V DC 1.5 W (motors inactive), 2.7 W (motors active)
Dimensions (W x H x D)	52.0 x 57.5 x 92.6 mm (2 1/8 x 2 3/8 x 3 3/4 inches)	37.3 x 43.8 x 61.0 mm (1 1/2 x 1 3/4 x 2 1/2 inches)
Lens adaptor screw	Yes	Yes
Mass	230 g (8.1 oz)	84 g (2.9 oz)
Supplied accessories	24P FFC, 10P FFC, 4P-4P harness, Ferrite ring	24P FFC, 4P-4P harness, Ferrite ring

FCB-IX Series

FCB-IX47C/FCB-IX47CP 31
FCB-IX45C/FCB-IX45CP 31
FCB-IX11A/FCB-IX11AP 31

Colour Camera Block

FCB-IX47C/FCB-IX47CP FCB-IX11A/FCB-IX11AP FCB-IX45C/FCB-IX45CP

Digital Signal Processor
1/4 Type EXview HAD CCD *1
1/4 Type Super HAD CCD *2
18x Optical Zoom *2
10x Optical Zoom *1
4x Digital Zoom
On Screen Display
Slow Shutter
SPOT AE Function
VISCA Protocol
ZOOM Trigger
Electronic FLIP *3
SMART Lens Control

*1: FCB-IX11A/FCB-IX11AP Only
*2: FCB-IX47C/FCB-IX47CP/FCB-IX45C/FCB-IX45CP Only
*3: FCB-IX47C/FCB-IX47CP Only

Outline

The high-performance Sony **FCB-IX** colour block camera series, providing high-quality images and excellent sensitivity – these block cameras are suitable for integration into a variety of systems for almost any application.

The Sony FCB-IX colour block camera series incorporates high-performance Digital Signal Processing (DSP) and firmware that greatly enhance their operation and picture quality compared to conventional block cameras. Inheriting the outstanding features of previous generations of Sony block cameras, Sony FCB-IX Series is ideal for numerous general purpose applications. For example, they can be integrated into low vision systems, police cars, photo booths, and document stands.

The FCB-IX47C/IX47CP and FCB-IX45C/IX45CP colour cameras incorporate a 1/4-type Super HAD™ CCD and feature a 72x zoom ratio (18x optical, 4x digital) and a minimum illumination of 1.0 lx – expanding their vast application appeal. The FCB-IX11A/IX11AP colour cameras incorporate a 1/4-type EXview HAD™ CCD and feature a 40x zoom ratio (10x optical, 4x digital) into their ultra-compact and lightweight body, making them ideal for space restricted applications. Offering high picture quality and a variety of functions, the FCB-IX Series is ideal for your demanding applications.

Features

- **High-performance Digital Signal Processing** (DSP)
- **High-speed serial interface (max. 38.4 Kb/s) with TTL Signal-Level Control** (VISCA™ protocol)
- **High-quality image in both digital-zoom and slow-shutter modes** (FCB-IX47C/IX47CP, FCB-IX11A/IX11AP only)
- **Various AF modes including Zoom Trigger and Interval modes**
- **Various AE modes including Spot AE mode to optimise the brightness within the specific area**
- **Electronic-Flip (E-Flip) for capturing images in the proper orientation** (FCB-IX47C/IX47CP only)
- **Expanded mode parameter for shutter speed and gain level**
- **Superb sensitivity**
- **Various customisable settings**
- **Unique algorithms for lens-life extension**
  - **Autofocus (AF) algorithm**
    This unique algorithm makes the block camera ideal for security applications, in which 24/7 continuous usage is common. This technology controls the unit's autofocus function to provide extended lens life and steady image quality.
  - **SMART (Sony modular automatic lens reset technology) lens control***
    Automatically compensates for mechanical misalignment of the lens, which may occur over a long period of continuous usage.
- **Low power consumption** (1.5/1.6 W when motors are inactive)
- **EEPROM backup system without battery**
- **16-bytes of memory is available for recording data such as product serial numbers and camera/system ID numbers** (FCB-IX47C/IX47CP, FCB-IX45C/IX45CP only)
- **Environmentally-friendly** (Lead-free solder and Halogen-free Printed-circuit boards)

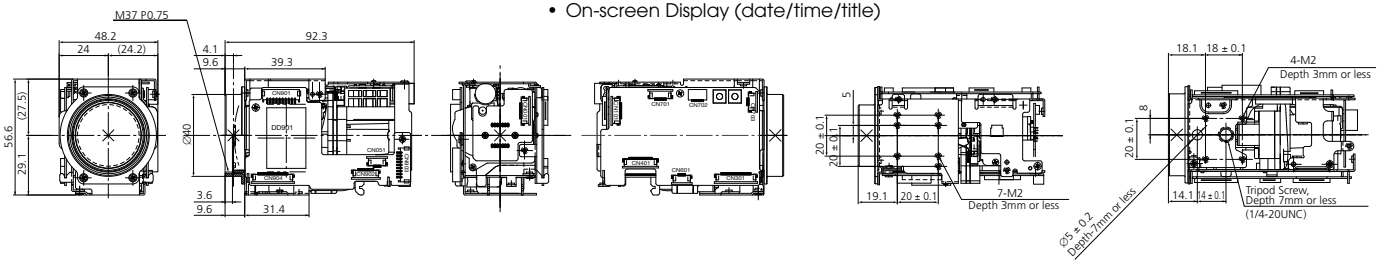
Dimensions / Features

FCB-IX47C/IX47CP

- 1/4-type Super HAD™ CCD
- 72x Zoom Ratio (18x optical, 4x digital)
- Minimum Illumination of 1.0 lx (typical)
- Key Switch Control Compatibility
- Spot AE
- E-Flip
- Field Memory/Freeze Mode
- High-speed Serial Interface (maximum 38.4 Kb/s) with TTL Signal-Level Control (VISCA protocol)
- Electronic Shutter/Slow Shutter
- On-screen Display (date/time/title)

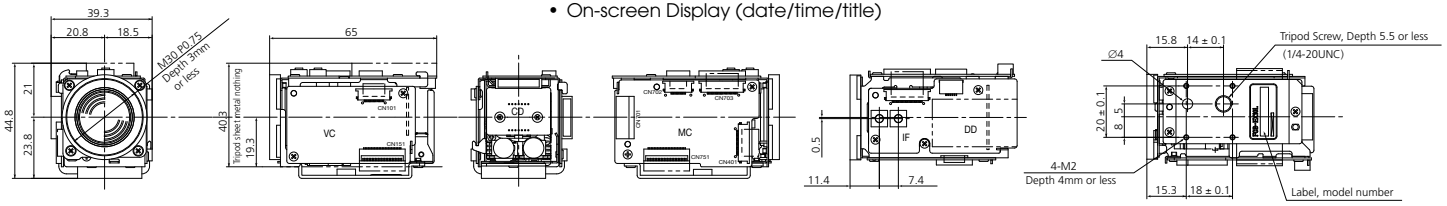
FCB-IX45C/IX45CP

- 1/4-type Super HAD™ CCD
- 72x Zoom Ratio (18x optical, 4x digital)
- Minimum Illumination of 1.0 lx (typical)
- Key Switch Control Compatibility
- Spot AE
- High-speed Serial Interface (maximum 38.4 Kb/s) with TTL Signal-Level Control (VISCA protocol)
- On-screen Display (date/time/title)



FCB-IX11A/IX11AP

- 1/4-type Exview HAD™ CCD
- Compact and Lightweight
- 40x Zoom Ratio (10x optical, 4x digital)
- Minimum Illumination of 1.5 lx (typical)
- Key Switch Control Compatibility
- Spot AE
- Field Memory/Freeze Mode
- High-speed Serial Interface (maximum 38.4 Kb/s) with TTL Signal-Level Control (VISCA protocol)
- Electronic Shutter/Slow Shutter
- On-screen Display (date/time/title)



Pin Assignment

CN903

DC and video connector (FCB-IX47C/IX47CP and FCB-IX45C/IX45CP)

Pin No.	Name	Level
1	Power In	6 V – 12 V
2	GND (power)	–
3	NC	–
4	Video Out	Composite video signal
5	GND (for video)	–
6	Y_Out	1.0 ± 0.2 V
7	GND (for Y signal)	–
8	C_Out	–
9	GND (for C signal)	–

Connector: JST S9B-ZR-SM3A-TF

CN901 IF Board

DC and video connector (FCB-IX11A/IX11AP)

Pin No.	Name	Level
1	Power In	6 V – 12 V
2	GND (power)	–
3	NC	–
4	Video Out	Composite video signal
5	GND (for video)	–
6	Y_Out	–
7	GND (for Y signal)	–
8	C_Out	–
9	GND (for C signal)	–

Connector: JST S9B-ZR-SM3A-TF

CN751/901 MC-Board

Communication connector (CN751: FCB-IX11A/IX11AP
CN901: FCB-IX47C/IX47CP/IX45C/IX45CP)

Pin No.	Name	Level
1	T x D IN	RS-232C Level
2	NC	–
3	NC	–
4	R x D IN	RS-232C Level
5	TD	TTL Level
6	NC	–
7	NC	–
8	RD	TTL Level
9	GND	–
10	AF_LED	–

Connector type: JST S10B-ZR-SM3A-TF

CN601/701

Key switch connector
(CN601: FCB-IX47C/IX47CP/IX45C/IX45CP
CN701: FCB-IX11A/IX11AP)

Pin No.	Name
1	GND
2	GND
3	KEY_AD0
4	KEY_AD1
5	KEY_AD2
6	KEY_AD3
7	KEY_AD4
8	KEY_AD5
9	KEY_AD6
10	KEY_AD7
11	NC
12	Strobe

Connector type: Molex 52689-1297 FFC (0.5 mm)

Specifications

	FCB-IX47C	FCB-IX47CP	FCB-IX45C	FCB-IX45CP	FCB-IX11A	FCB-IX11AP
Image device	1/4-type Super HAD CCD				1/4-type Exview HAD CCD	
Effective picture elements	Approx. 380,000 pixels	Approx. 440,000 pixels	Approx. 380,000 pixels	Approx. 440,000 pixels	Approx. 380,000 pixels	Approx. 440,000 pixels
Lens	18x zoom, f=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0				10x zoom, f=4.2 mm (wide) to 42 mm (tele), F1.8 to F2.9	
Digital zoom	4x (72x with optical zoom)				4x (40x with optical zoom)	
Viewing angle (H)	48° (wide end) to 2.8° (tele end)				46° (wide end) to 5.0° (tele end)	
Minimum working distance	10 mm (wide end), 800 mm (tele end)				10 mm (wide end), 1000 mm (tele end)	
Sync system	Internal					
Minimum illumination	1.0 lx (50 IRE)				1.5 lx (50 IRE)	
S/N ratio	More than 50 dB					
Electronic shutter	1/1 to 1/10,000 s 22 steps		1/60 to 1/10,000 s 16 steps	1/50 to 1/10,000 s 16 steps	1/1 to 1/10,000 s 22 steps	
White balance	Auto, ATW, Indoor, Outdoor, One-Push, Manual					
Gain	Auto/Manual (-3 to 28 dB, 2 dB steps)					
AE control	Auto, Manual, Priority mode, Bright, EV compensation, Backlight compensation					
EV compensation	-10.5 to +10.5 dB (1.5 dB steps)					
Backlight compensation	On/Off					
Flicker cancel	Auto	–	Auto	–	Auto	–
Focusing system	Auto (Sensitivity: normal, low), One-Push AF, Manual, Infinity, Interval AF, Zoom Trigger AF					
Picture effect	Neg. Art, Black & White, Mirror Image, E-Flip			Neg. Art, Black & White, Mirror Image		
Camera operation switch	Zoom tele, Zoom wide					
Video output	VBS: 1.0 Vp-p (sync negative), Y/C Output					
Camera control interface	VISCA (TTL/RS-232C signal level), baud rate: 9.6 Kb/s, 19.2 Kb/s, 38.4 Kb/s, Stop bit: 1/2 selectable					
Storage temperature	-20 to 60 °C (-4 to 140 °F)					
Operating temperature	0 to 50 °C (32 to 122 °F)					
Power consumption	6 to 12 V DC/1.5 W (motors inactive)				6 to 12 V DC/1.6 W (motors inactive)	
	2.0 W (motors active)				2.1 W (motors active)	
Mass	170 g (6.0 oz)				95 g (3.4 oz)	
Dimensions (W x H x D)	48.2 x 56.6 x 92.3 mm (1 15/16 x 2 1/4 x 3 3/4 inches)				39.3 x 44.8 x 65 mm (1 9/16 x 1 13/16 x 2 5/8 inches)	

* The initial factory setting for the SMART Lens Control function is" OFF". When the function is turned OFF and the unit is used continuously for more than 24 hours, lens system initialisation is recommended every 24 hours to extend the life of the lens. The" Initialise Lens" command takes a little less than 3 seconds to initialise the focus and zoom. When the Smart Lens Control function is turned ON, lens initialisation is not required.

FCB Series Function Chart

Functions \ Model	FCB-HD Series		FCB-IX Series		FCB-PVSeries	
	HD					
x36 Optical Zoom Lens Model	–		–	–	–	–
x26 Optical Zoom Lens Model	–		–	–	–	–
x18 Optical Zoom Lens Model	–		–	FCB-IX47C FCB-IX47CP	–	FCB-PV480
x10 Optical Zoom Lens Model	FCB-H10	FCB-H11	FCB-IX11A FCB-IX11AP	–	FCB-PV10	–
Wide Dynamic Range	–		–	–	–	–
High Resolution	–		–	–	–	–
Auto-IR-Cut Filter Removable	–	✓	–	–	–	✓
Sync System	Internal					
Spherical Privacy Zone Masking	–		–	✓ (without Mosaic Effect)	✓ (with Mosaic Effect)	✓ (with Mosaic Effect)
Electronic Flip (e-Flip)	–		–	✓	✓	✓
Motion Detection	–		–	–	–	–
Alarm Function	–		–	✓	✓	✓
Image Stabiliser Function	–		–	–	–	–
Zoom Mode	Standard Mode / Variable Mode / Direct Mode					
Digital Zoom	✓ (x12)		✓ (x4) (Combine Mode / Separate Mode)	✓ (x4) (Combine Mode / Separate Mode)	–	–
Focus Mode	Auto Focus (Normal AF, Interval AF, Zoom Trigger AF), Manual (Standard speed Mode / Variable Speed Mode / Direct Mode), One Push Trigger Mode, Infinity Mode, Near Limit Mode		Auto Focus (Normal AF, Interval AF, Zoom Trigger AF <Sensitivity: normal, low>), Manual (Standard Speed Mode / Variable Speed Mode / Direct Mode), One Push Trigger Mode, Infinity Mode, Near Limit Mode			
White Balance	Auto WB, ATW, Indoor, Outdoor, One Push WB, Manual WB					
Automatic Exposure Mode	Full Auto, Manual (Shutter Priority, Iris Priority), Bright, EV compensation, Backlight compensation					
Slow Shutter	✓		✓	✓	✓	✓
Slow AE Response Function	–		–	✓	–	–
EV Compensation	✓ (-10.5dB to +10.5dB, 1.5dB 15 steps)					
Aperture Control	✓ (16 steps)		✓ (16 steps)	✓ (16 steps)	✓ (16 steps)	✓ (16 steps)
Back-light Compensation	✓		✓	✓	✓	✓
Gamma	Normal / Cinema type / Cinema type 2		–	–	–	–
Mirror Image	–		✓	✓	✓	✓
Picture Freeze	✓		✓	✓	✓	✓
Picture Effect	Neg. Art, Black & White				Black & White	
Title Display	–		✓ (One-Line On-Screen Display) (One line can contain up to 20 characters)			
Date/Time	–		✓	✓	–	–
VISCA Interface	VISCA protocol (TTL Level) Baud Rate: 9.6kbps/19.2kbps/38.4kbps, Stop bit: 1bit		VISCA protocol (TTL / RS-232C Level) Baud Rate: 9.6kbps/19.2kbps/38.4kbps, Stop bit: 1 or 2bit (stop-bit selectable)		VISCA protocol (TTL Level) Baud Rate: 9.6kbps/19.2kbps/38.4kbps, Stop bit: 1 or 2bit (stop-bit selectable)	
Key Switch Control	–		✓	✓	–	✓
Camera Switch	Zoom Tele, Zoom Wide				–	Zoom Tele, Zoom Wide

FCB Series Function Chart

Functions \ Model	FCB-EX Series					
	D Version	C Version				
x36 Optical Zoom Lens Model	FCB-EX1010 FCB-EX1010P		FCB-EX1000 FCB-EX1000P	–	–	–
x26 Optical Zoom Lens Model	FCB-EX990D FCB-EX990DP	–	–	FCB-EX980 FCB-EX980P	FCB-EX980S FCB-EX980SP	–
x18 Optical Zoom Lens Model	FCB-EX490D FCB-EX490DP	–	–	FCB-EX480C FCB-EX480CP	–	FCB-EX48C FCB-EX48CP
x10 Optical Zoom Lens Model	–	FCB-EX11D FCB-EX11DP	FCB-EX20D FCB-EX20DP	–	–	–
Wide Dynamic Range	✓	–	–	–	–	–
High Resolution	✓	✓	–	–	–	–
Auto-IR-Cut Filter Removable	✓	–	✓	✓	✓	✓	–
Sync System	Internal/External (V-Lock)					
Spherical Privacy Zone Masking	✓ (without Mosaic Effect)	✓ (without Mosaic Effect)	✓ (without Mosaic Effect)	✓ (without Mosaic Effect)	✓ (without Mosaic Effect)	✓ (without Mosaic Effect)
Electronic Flip (e-Flip)	✓	✓	✓	✓	✓	✓
Motion Detection	✓	✓	–	–	–	–
Alarm Function	–	–	✓	✓	✓	✓
Image Stabiliser Function	–	–	–	–	✓	–
Zoom Mode	Standard Mode / Variable Mode / Direct Mode					
Digital Zoom	✓ (x12) (Combine Mode / Separate Mode)	✓ (x12) (Combine Mode / Separate Mode)	✓ (x12) (Combine Mode / Separate Mode)	✓ (x12) (Combine Mode / Separate Mode)	✓ (x12) (Combine Mode / Separate Mode)	✓ (x12) (Combine Mode / Separate Mode)
Focus Mode	Auto Focus (Normal AF, Interval AF, Zoom Trigger AF <Sensitivity: normal, low>) Manual (Standard Speed Mode / Variable Speed Mode / Direct Mode), One Push Trigger, Infinity, Near Limit					
White Balance	Auto WB, ATW, Indoor, Outdoor, One Push WB, Manual WB					
Automatic Exposure Mode	Full Auto, Manual (Shutter Priority, Iris Priority), Bright, EV compensation, Backlight compensation					
Slow Shutter	✓	✓	✓	✓	✓	✓
Slow AE Response Function	✓ (Approx. 1 sec. to 32 times)			✓	✓	✓
EV Compensation	✓(-10.5dB to +10.5dB, 1.5dB 15 steps)					
Aperture Control	✓(16 steps)	✓(16 steps)	✓(16 steps)	✓(16 steps)	✓(16 steps)	✓(16 steps)
Back-light Compensation	✓	✓	✓	✓	✓	✓
Gamma	–	–	–	–	–	–
Mirror Image	✓	✓	✓	✓	✓	✓
Picture Freeze	✓	✓	✓	✓	✓	✓
Picture Effect	Neg. Art, Black & White					
Title Display	✓ (Multi-Line On-Screen Display) (One line can contain up to 20 characters)		✓ (One-Line On-Screen Display) Title Display (One line can contain up to 20 characters)			
Date/Time	–	–	–	–	–	–
VISCA Interface	VISCA protocol (TTL Level) Baud Rate: 9.6kbps/19.2kbps/38.4kbps, Stop bit: 1 or 2bit (stop-bit selectable)					
Key Switch Control	✓	–	✓	✓	✓	✓	✓
Camera Switch	Zoom Tele, Zoom Wide	–	Zoom Tele, Zoom Wide			

Colour Pan/Tilt/Zoom

EVI-HD Series 37
EVI-SD Series 41
BRC Series 46

EVI-HD Series

EVI-HD7V	38
EVI-HD3V	38
EVI-HD1	38

HD Pan Tilt Zoom Camera

EVI-HD7V EVI-HD1 EVI-HD3V

1/3 Type HD CMOS | 10x Optical Zoom | 4x Digital Zoom | DV-I Interface *1 | HD-SDI Interface *2

Multi Format Video Output | 1080p /60 *3 | 720p /60 *4 | Low-noise Pan/Tilt | Pan Tilt Zoom

Colour Video Camera | High Speed | Wide Range Pan/Tilt | Quiet Operation | RS-232C VISCA Protocol

*1: EVI-HD3V and EVI-HD7V Only
*2: EVI-HD1 Only
*3: EVI-HD7V Only
*4: EVI-HD3V Only

Outline

Enhance your remote presence experience with HD. Sony, the world's leading robotic camera manufacturer, is expanding its HD Pan/Tilt/Zoom (P/T/Z) camera lineup.

Two new HD robotic cameras are ideally suited for videoconferencing, distance learning, corporate training, and courtrooms. Whether you need standard definition, 720p, 1080i, or 1080p for your application, there is a Sony P/T/Z HD camera to capture your true-to-life images.

The all-in-one design of the EVI-HD7V and EVI-HD3V P/T/Z cameras combines Sony's expertise in HD technology with its renowned low-noise pan/tilt mechanism. The capture of intricate visual details creates the feeling of being in the same room with remote participants around the globe.

The EVI-HD7V achieves digital image acquisition of up to 1080p/60*1 for exceptional picture quality. The EVI-HD3V provides superb image quality of up to 720p/60 at an affordable price. Both cameras are equipped with a DVI-I interface, enabling easy connection to a PC monitor.

*1: 1080p/60 is only available for the EVI-HD7V.

EVI-HD7V

1080p/60

The EVI-HD7V delivers intricately detailed and vivid images, enhancing your videoconference or training meeting with true-to-life images of the participants.

DVI-I Interface

Thanks to its DVI-I interface, the EVI-HD7V is ideally suited for easy connection to a HD or PC monitor equipped with today's popular digital or analog interfaces such as DVI-D and analog component – all of which provide high-quality digital display.

EVI-HD3V

720p/60

The EVI-HD3V produces stunning HD images of up to 720p/60, while offering powerful cost benefits that reduces the total system cost.

DVI-I Interface

Thanks to its DVI-I interface, the EVI-HD3V is ideally suited for easy connection to a HD or PC monitor equipped with today's popular digital or analog interfaces such as DVI-D and analog component – all of which provide high-quality digital display.

EVI-HD1

Multi-format Video Outputs from NTSC/PAL to Full HD

With the flip of a switch on the EVI-HD1, users can easily change between HD and SD output. This popular P/T/Z camera allows for SD to HD migration and can be used in combination with any number of codecs and other professional audio/video systems.

HD-SDI Interface

The EVI-HD1 comes equipped with an HD-SDI interface that allows for long-distance transmission of HD images without degrading the picture quality. The EVI-HD1 is ideally suited for small to medium-sized conference rooms, auditoriums, and classrooms and can integrate with professional audio/video systems without the need for interface conversion.

Features

Flexibility and Choice of Video Outputs From SD to Full HD

EVI-HD Series provides multiple formats for natural and smooth video images.

	EVI-HD7V	EVI-HD3V	EVI-HD1
1080p/59.94 1080p/50	✓		
1080i/59.94 1080i/50	✓		✓
1080p/29.97 1080p/25	✓		✓
720p/59.94 720p/50	✓	✓	✓
720p/29.97 720p/25	✓	✓	✓
640 x 480p/59.94	✓ (LB)	✓ (LB)	
SD			✓ (LB,CR,SQ)

LB: Letter box CR: Cropping SQ: Squeeze

High-quality Image Transmission

The EVI-HD7V and EVI-HD3V are both equipped with a DVI-I interface that is designed to maximise high video quality of digital displays. This digital interface is capable of displaying both digital and analog signals (output is selectable from Y/Pb/Pr and RGB). The EVI-HD1 features an HD-SDI interface, enabling long-distance transmission of HD images without degrading the picture quality.

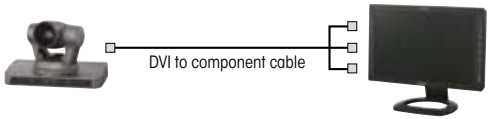
Video Interface

Camera		EVI-HD7V/HD3V	EVI-HD1
Digital output	IF	DVI-I (Digital)	HD-SDI
	Colour coding	RGB or Y/Pb/Pr*1	Y/Cb/Cr
Analog output	IF	DVI-I (Analog)	Component (D-sub 15-pin)
	Colour coding	RGB or Y/Pb/Pr*1	Y/Pb/Pr
	Tri-level Sync on video signal	On or Off*2	Always on
	Sync signal	HD and VD	HD and VD, or HD and Tri-level Sync*1

*1 Can be set by OSD or VISCA *2 Selected by DIP SW

Connection of EVI-HD7V/HD3V to HD Monitor

By selecting Y/Pb/Pr in colour coding of EVI-HD7V/HD3V, analog component signals can be output to an HD monitor.



Wide-range, Quiet, and Quick Pan/Tilt Movement

All models in the EVI-HD Series utilise a direct drive motor mechanism for achieving high-speed, quiet, and smooth P/T/Z operations to capture images. These cameras cover a wide shooting range, ideal for capturing extensive areas where face-to-face discussions are critical. The face-to-face experience is enhanced by the unique quiet operation of the direct drive pan/tilt mechanism.

- Pan angle: -100° to +100° (max pan speed: 300 degrees/s)
- Tilt angle: -25° to +25° (max tilt speed: 125 degrees/s)

10x Optical (40x with Digital Zoom)

All models in the EVI-HD Series are equipped with a 10x optical zoom lens. They have 40x zoom ratio with 4x digital zoom lens. This fast and stable auto-focus lens can clearly capture small and intricately featured objects.

Other Features

RS-232C Remote Control (VISCA™ Protocol)

The EVI-HD Series enables camera settings and P/T/Z control functions to be performed remotely at any location and at high communication speeds via the RS-232C interface.

Six Position Presets

All models in the EVI HD Series can store up to a maximum of six preset settings for P/T/Z, focus position, exposure mode, and white balance mode.

Customisable Settings via On-screen Menu using IR Remote Commander® Unit

Users are able to adjust various camera settings using IR Remote Commander unit. The easy-to-use supplied IR Remote Commander unit is useful for full operation of the EVI-HD Series from various locations within a room.

Rear Panel

EVI-HD7V/EVI-HD3V

EVI-HD1

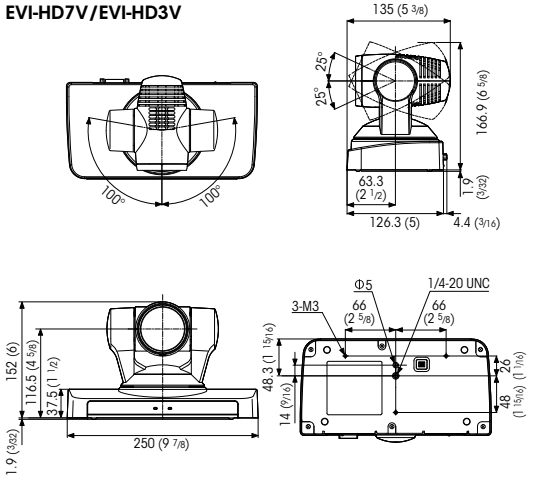
Specifications

	EVI-HD7V	EVI-HD3V	EVI-HD1
Image sensor	1/3-type CMOS		
Signal system	1080p/59.94, 1080p/50, 1080i/59.94, 1080i/50, 1080p/29.97, 1080p/25, 720p/59.94, 720p/50, 720p/29.97, 720p/25, 640 x 480p/59.94	720p/59.94, 720p/50, 720p/29.97, 720p/25, 640 x 480p/59.94	1080i/59.94, 1080i/50, 1080p/29.97, 1080p/25, 720p/59.94, 720p/50, 720p/29.97, 720p/25 NTSC, PAL
Lens	10x optical zoom, 40x with digital zoom, f=3.4 to 33.9 mm, F1.8 to F2.1		
Minimum object distance	100 mm (wide)		
Horizontal viewing angle	8° (tele) to 70° (wide) at HD signal output		
Focus system	Auto/Manual		
Minimum illumination	15 lx (50 IRE, F1.8)		
Exposure control	Auto* / Manual / Priority AE* / Exposure compensation / Bright		
Shutter speed	1/60 to 1/10,000 sec. (59.94 Hz system), 1/50 to 1/10,000 sec. (50 Hz system)		1/2 to 1/10,000 sec.
Gain	Auto / Manual (-3 to +18 dB)		
White balance	Auto / Indoor / Outdoor / One push auto / Manual		
Effects	—		B&W, Nega Art
S/N ratio	50 dB		
Pan/Tilt	Pan: ±100° (Max. speed 300°/sec.) Tilt: ±25° (Max. speed 125°/sec.)		
Position preset	6 positions		
Video output	DVI-I (Digital and Analog)		HD: HD-SDI, Analog Component (Y/Pb/Pr) SD: VBS, Y/C
Control terminal	RS-232C (8-pin mini DIN) control (VISCA)		
Power requirements	12 V DC (10.8 to 13.0 V DC)		
Power consumption	Max. 26.4 W (at DC 12 V)		Max. 30 W (at DC 12 V)
Operating temperature	0 to 40°C (32 to 104°F)		
Storage temperature	-20 to 60°C (-4 to 140°F)		
Dimensions (W x H x D)	250 x 152 x 135 mm (9 7/8 x 6 x 5 3/8 inches) (without protrusions)		259 x 150 x 169 mm (10 1/4 x 6 x 6 3/4 inches) (without protrusions)
Mass	Approx. 1.5 kg (3 lb 5 oz)		Approx. 2 kg (4 lb 7 oz)
Supplied accessories	AC adaptor, AC power cable, IR remote commander unit, Operating instruction		

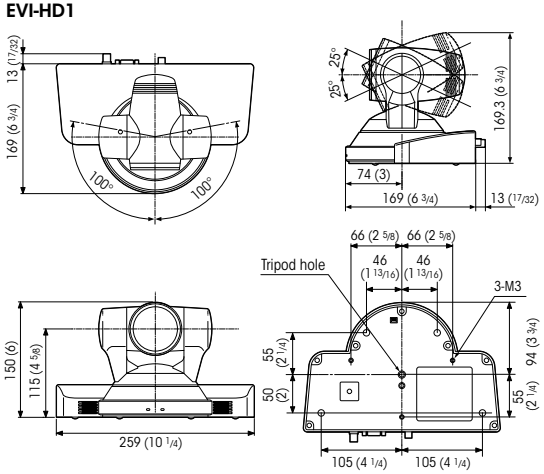
*Max gain limit is available for EVI-HD7V/HD3V.

Dimensions (mm)

EVI-HD7V/EVI-HD3V



EVI-HD1



Unit: mm (inches)

EVI-SD Series

EVI-D70/D70P	42
EVI-D70W/D70PW	42
EVI-D100/D100P	44

Communication Colour Video Camera

EVI-D70/D70P (Black)
EVI-D70W/D70PW (White)

Pan Tilt Zoom | Colour Video Camera | 1/4 Type EXview HAD CCD | 18x Optical Zoom | 12x Digital Zoom | Ceiling Mount | Desktop Installation | Wide Range Pan/Tilt | High Speed

Auto ICR | Alarm Function | RS-232C /422 VISCA Protocol | Wide Angle View | Daisy Chain Capability | SPOT AE Function | Quiet Operation | Built-in Conversion Lens

Outline

Sony continues to add choice and flexibility to its industry leading pan/tilt/zoom camera

lineup with the introduction of the Sony **EVI-D70** and **EVI-D70P** colour video cameras.

With outstanding sensitivity of 1 lux, they can be used indoors or outdoors, even in poorest light.

The EVI-D70 is available in black housing (ref. EVI-D70P) or white housing (ref. EVI-D70PW).

The EVI-D70 and EVI-D70P combine a high-quality colour video camera with the flexibility of remote pan/tilt/zoom operation, all in a compact easy-to-use package. Incorporating an 18x optical zoom lens, these cameras allow a user to zoom in on a small or distant object with exceptional clarity. Compared to their predecessor, the EVI-D30/D31, EVI-D70 and EVI-D70P cameras offer a wider pan/tilt range, and a faster pan/tilt mechanism. Above all, these cameras are ceiling mountable - a first for Sony's popular EVI cameras.

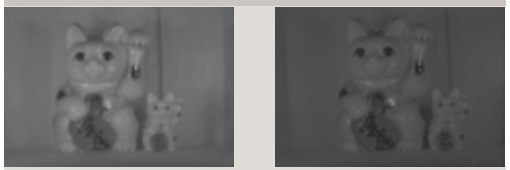
The EVI-D70 and EVI-D70P are also equipped with a variety of convenient features such as an Auto ICR function, Alarm function and RS-232C/422 serial control, making them ideal for any remote-shooting applications such as distance learning, places of worship, courtrooms, event venues, concert halls, and more.

Features

- **216x Zoom Ratio (18x Optical, 12x Digital)**
- **Wide-Range, High-Speed Pan/Tilt**
  - Pan angle: -170° to +170° (max. pan speed: 100°/s)
  - Tilt angle: -30° to +90° (max. tilt speed: 90°/s)
- **Superb Picture Quality With EXview HAD CCD™**
  - Minimum illumination: 1 lx
  - Horizontal resolution: 470 TV lines (EVI-D70 & EVI-D70W) 460 TV lines (EVI-D70P & EVI-D70PW)

The adoption of Sony EXview HAD CCD technology improves basic camera performance. For example, these cameras offer superb sensitivity of 1 lx (typical), and a low smear level and D-range. (see Fig. 1)

IR sensitivity



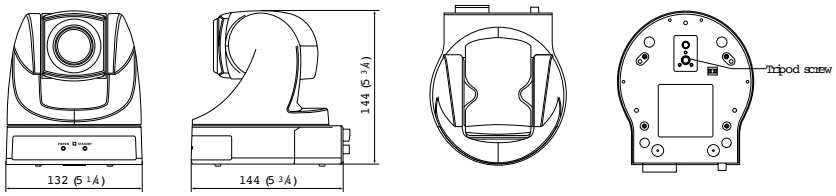
EVI-D70/D70P (1 lx) | Conventional Cameras (3 lx)

Smear

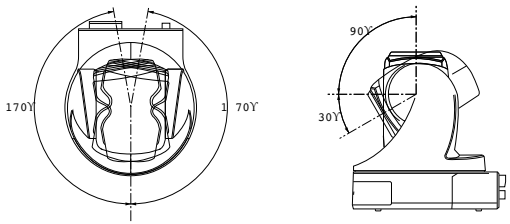
EVI-D70/D70P | Conventional Cameras

Fig. 1 Comparison: IR Sensitivity and Smear

Dimensions (mm)



Pan/Tilt Range



Features

Ceiling-Mount or Desktop Installation

RS-232C or RS-422 Serial Control (VISCA Command)

All camera settings and pan/tilt/zoom functions can be controlled remotely via a PC. With the RS-232C connection, maximum cable length can be extended to 15 m (50 feet), while the RS-422 connection extends this further to 1200 m (4000 feet).

Auto ICR (IR Cut filter Removal) Function (Fig. 2)

The Auto ICR function automatically switches the settings to attach or remove the IR Cut filter for increased sensitivity. With a set level of darkness, the IR Cut filter is automatically disabled (ICR ON), and the infrared sensitivity is increased. With a set level of brightness, the filter is automatically enabled (ICR OFF). The ICR automatically engages depending on the ambient light, allowing the cameras to be effective both in day and night environments.

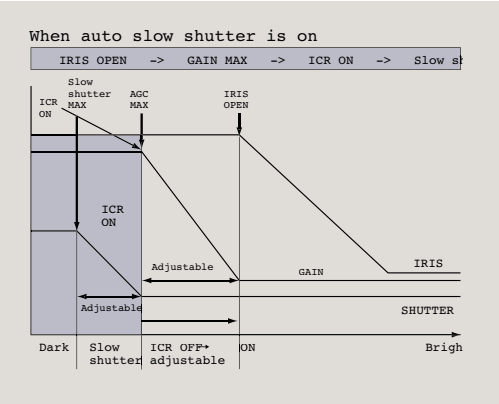


Fig. 2 Auto ICR

Rear Panel

Alarm Function and AE Spot Setting (Fig. 3)

The EVI-D70/D70P cameras provide an alarm function that can detect changes within a user-designated area of an image.* When a change in AF, AE or both is detected, these cameras output an alarm trigger signal to the external equipment via the VISCA protocol. In combination with the Spot AE function, these cameras also detect changes in the luminance level, and they output an alarm signal. The detecting area can be applied to any of 16 vertical and 16 horizontal blocks.

*Using any of the pan/tilt/zoom functions will disable the alarm.

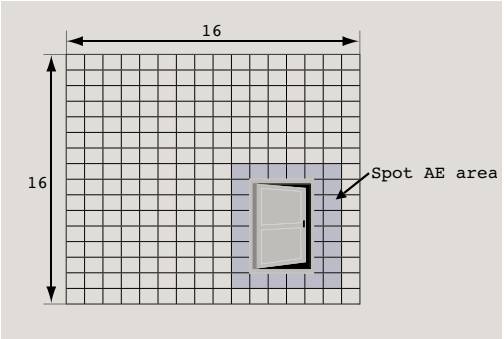


Fig. 3 AE Spot Setting

Auto Power-Off/Night Power-Off Function

Daisy Chain Capability (Up to seven cameras)

Six-Position Preset

Multi-Function IR Remote Commander® Unit

EVI-D30/D31 Emulation Mode

Specifications

	EVI-D70 & EVI-D70W	EVI-D70P & EVI-D70PW
Signal system	NTSC	PAL
Image sensor	1/4-type EXview HAD CCD	
Number of effective pixels (H x V)	768 x 494	752 x 582
Horizontal resolution	470 TV lines (wide end)	460 TV lines (wide end)
Lens	18x zoom, f=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0	
Horizontal angle of view	2.7° (tele end) to 48° (wide end)	
Minimum object distance	10 mm (wide end), 800 mm (tele end)	
Minimum illumination	1 lx (F1.4)	
Auto exposure	Auto/Manual/Priority AE, Exposure compensation, Back-light compensation	
Shutter speed	1 to 1/10,000 s	
Gain	Auto/Manual (-3 to +28 dB, 2 dB steps)	
White balance	Auto/ATW/Indoor/Outdoor/One push/Manual	
S/N ratio	More than 50 dB	
Pan/tilt	Pan: ±170° (Max. speed: 100°/s), Tilt: -30° to +90° (Max. speed: 90°/s)	
Position preset	6 positions	
Picture effect	Neg. Art, Black & White	
Video output	VBS, Y/C	
Control terminal	RS-232C (8-pin mini DIN) control (VISCA)/RS-422 (9-pin) control (VISCA), baud rate: 9.6 Kb/s, 38.4 Kb/s	
Power requirement	DC 10.8 to 13.2 V	
Power consumption	12 W	
Operating temperature	0 to 40 °C (32 to 40 °F)	
Storage temperature	-20 to +60 °C (-4 to +140 °F)	
Dimensions (W x H x D)	132 x 144 x 144 mm (5 1/4 x 5 3/4 x 5 3/4 inches)	
Mass	950 g (2 lb 2 oz)	
Body colour	Black, White	
Supplied accessories	AC adaptor, IR remote commander unit, Ceiling bracket, Operating instructions	

Communication Colour Video Camera

EVI-D100/D100P

Pan Tilt Zoom | Colour Video Camera | 1/4 Type Super HAD CCD | 10x Optical Zoom | 4x Digital Zoom | Built-in Conversion Lens | High Speed | Wide Range Pan/Tilt
Quiet Operation | Wide Angle View | Auto Focus | Automatic Exposure Control | Backlight Compensation | Daisy Chain Capability | Auto Sleep Function | RS-232C VISCA Protocol

Outline

The Sony **EVI-D100** (NTSC) and **EVI-D100P** (PAL) video cameras are a great choice for any application that requires a high-quality colour video camera with the flexibility of remote pan/tilt/zoom operation, all in a compact easy-to-use package.

These high quality CCD cameras combine a high-speed, quiet pan/tilt with a wide angle of view and 40x zoom. Auto focus and automatic exposure control with back light compensation are fast and stable and can easily cope with difficult lighting conditions.

The EVI-D100/D100P models are ideal for applications such as videoconferencing, distance learning and corporate training, surveillance, sports, concerts and internet communications such as webcasting. Additional advantages are provided by easy to use presets, daisy-chaining capability and various digital picture effects.

Features

High Speed, Wide Range Pan/Tilt

The camera moves to a designated position quickly and immediately with a high pan/tilt speed.

Max. pan speed: 300 degrees/s (range ± 100 degrees)

Max. tilt speed: 125 degrees/s (range ± 25 degrees)

Quiet Operation

Direct drive motors account for the gear-less structure of the camera, reducing the noise of pan/tilt motion drastically compared to conventional models.

40x Zoom Ratio (10x Optical + 4x Digital)

The fast and stable auto focus zoom lens reaches impressive 40x zoom ratio.

Built-in Conversion Lens for Wide Angle View (65 degrees)

The EVI-D100/D100P incorporates a newly developed wide-angle lens for wide field of view image capturing, making it ideal for use in small-sized rooms.

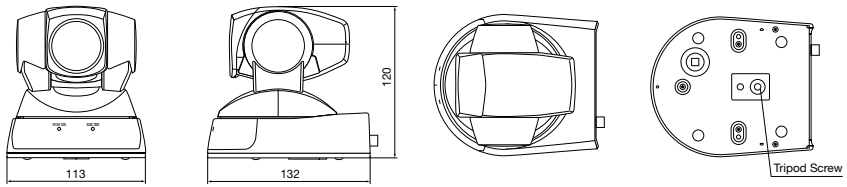
Six-position Presets with Battery Back-up

An integral back-up battery stores presets of pan/tilt/zoom, focus position, AE mode and White Balance mode, even when the unit is powered off.

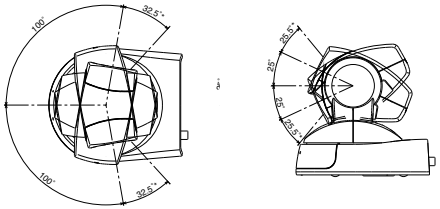
Auto Sleep Function

The camera can be set to automatically turn off when not in use after a specified period of time.

Dimensions (mm)



Pan/Tilt Range



Features

Various Picture Effects

Mirror Image, Still Image on Field Memory, Pastel Image, Negative/Positive Reversal, Enhanced Contrast, etc.

Multi-function IR Remote Commander® unit

Easy to use supplied Remote Commander unit is useful for basic pan/tilt/zoom camera control.

RS-232C Serial Control by VISCA™ software

All camera settings and pan/tilt/zoom functions can be controlled remotely via PC.

EVI-D30/D31 Emulation Mode

The EVI-D100/D100P features an EVI-D30/D31 emulation mode that allows users to control their cameras using the same commands as those used for the EVI-D30/D31 cameras.

* The EVI-D100/D100P may not emulate the EVI-D30/D31 perfectly due to the hardware differences between the two models.

Specifications

	EVI-D100	EVI-D100P
Video Signal	NTSC	PAL
Image Sensor	1/4 type Super HAD CCD™	
Effective Pixels	768 (H) x 494 (V)	752 (H) x 582 (V)
Horizontal Resolution	470 TV lines (Wide end)	460 TV lines (Wide end)
Lens	10x Optical Zoom, 40x with Digital Zoom, f = 3.1 to 31, F 1.8 to 2.9	
Horizontal Angle of View	6.6 to 65 degrees	
Minimum Object Distance	100 mm (Wide end), 600 mm (Tele end)	
Minimum Illumination	3.5 lx (F1.8)	
Auto Exposure	Auto/Manual/Priority AE, Exposure compensation, Back light Compensation	
Shutter Speed	1/4 to 1/10,000 s	1/3 to 1/10,000 s
White Balance	Auto, ATW, Manual, One Push, 3200K, 5800K	
Effects	Mirror Image, Still Image on Field Memory, Pastel Image, Negative/Positive Reversal, Sepia Image, Monochrome Image, Enhanced Contrast, Mosaic Image, Vertical Stretch, Horizontal Stretch, Motion Image on Still Image, Continuous Still Image, Motion Images on Binaried Still Image, After-image Lag of Moving Object	
S/N Ratio	More than 50 dB	
Pan/Tilt	Horizontal ± 100 degrees (Max speed 300 degrees/s), Vertical ± 25 degrees (Max speed 125 degrees/s) (in 0.07 degrees increments)	
Video Output	VBS, Y/C	
Power Requirements	DC 10.8 to 13.0 V	
Power Consumption	Max. 13.2 W (at 12 Vdc)	
Operating Temperature	0 to 40°C (32 to 40°F)	
Storage Temperature	-20 to 60°C (-4 to 140°F)	
Dimensions	113 (W) x 120 (H) x 132 (D) mm (4 1/2 x 4 3/4 x 5 1/4 inches)	
Mass	860 g (1 lb 14 oz)	
Supplied Accessories	AC adaptor, IR Remote Commander unit, Velcro tape, Operating instruction	

BRC Series

BRC-H700	47
BRC-Z700	47
BRC-Z330	47
BRC-300/300P	47

Colour Video Cameras

BRC-H700 BRC-Z330 BRC-Z700 BRC-300/300P

Pan Tilt Zoom | Ceiling Mount | Desktop Installation | 1/3 Type IT CCD x3 *1 | 1/4 Type CMOS x3 *2 | 1/3 Type CMOS *3 | 1/4.7 Type CCD x3 *4 | 12x Optical Zoom *5 | 18x Optical Zoom *3 | 20x Optical Zoom *2 | HD Video Output *6

SD Video Output *7 | Wide Range Pan/Tilt | Low Noise Pan/Tilt | HIGH Sensitivity *1 | Digital Signal Processor *2 | Optical Image Stabiliser *2 | Compact Size *3 | AUTO White Balance *8 | Colour Adjustment *9 | Colour AE Function *3

*1: BRC-H700 Only
*2: BRC-Z700 Only
*3: BRC-Z330 Only
*4: BRC-300/BRC-300P Only
*5: BRC-H700/BRC-300/BRC-300P Only
*6: BRC-H700/BRC-Z700/BRC-Z330 Only
*7: BRC-Z700/BRC-Z330/BRC-300 /BRC-300P Only
*8: BRC-Z700/BRC-Z330 Only
*9: BRC-Z700/BRC-Z330/BRC-H700 Only

Outline

Enhance your remote presence experience with HD. Sony, the world's leading robotic camera manufacturer, is expanding its HD Pan/Tilt/Zoom (P/T/Z) camera lineup.

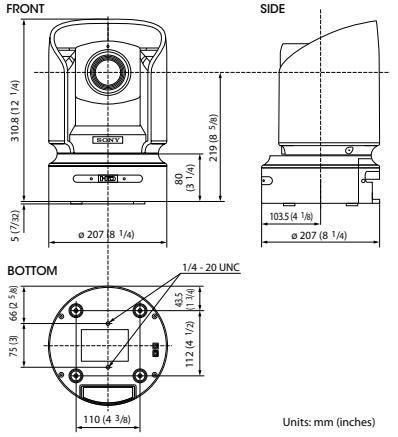
The BRC Series consists of four Pan/Tilt/Zoom (P/T/Z) cameras – the BRC-H700, BRC-Z700, BRC-Z330, and BRC-300/300P. They offer wide and smooth pan/tilt/zoom capabilities together with exceptional picture quality from SD to full HD images.

You can remotely control these cameras using the RM-BR300 Remote Control Unit or the BRS-200 Remote Camera Operating Switcher. The BRC Series is perfect for a variety of remote video shooting applications, and each camera integrates easily into a wide range of indoor and outdoor locations. These qualities enable more and more users to enjoy the benefits of BRC Series cameras, particularly in education, broadcast, bridal and corporate applications.

BRC-H700

Equipped with three 1/3-type HD CCDs, the BRC-H700 offers excellent picture quality with high sensitivity and a high resolution of 1,070,000 effective pixels.
This camera has the best sensitivity of the BRC Series; it therefore delivers superior performance in dimly lit environments, such as concert or wedding venues.

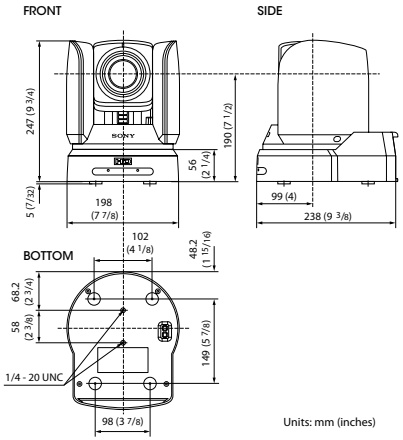
Moreover, the camera offers the widest viewing angle of the BRC Series, delivering wider images of each scene and providing a complete picture of ongoing events.



BRC-Z700

The BRC-Z700 offers a resolution of 1,040,000 effective pixels by deploying three 1/4-type ClearVid™ CMOS image sensors in combination with Sony-developed DSP technology. This camera includes a 20x optical auto-focus zoom lens with an optical image stabiliser.

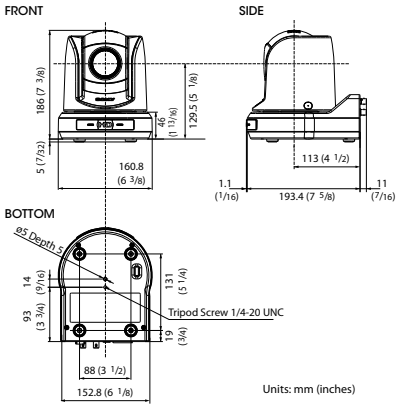
The perfect choice for long-distance-shooting applications, such as sporting coverage, this camera provides dual SD/HD outputs, enabling users to smoothly shift towards adopting a total HD system.



BRC-Z330

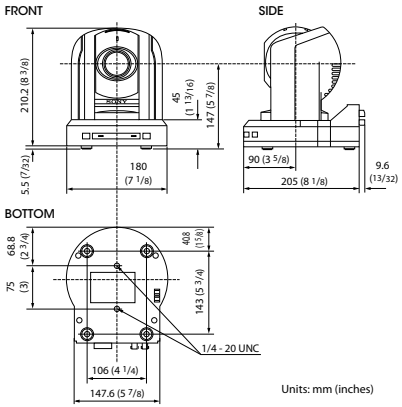
Equipped with single 1/3-type 2-megapixel CMOS image sensor, the BRC-Z330 delivers stunning HD images and SD images. This camera enables 1080i and 720p to be integrated in various HD systems. It also outputs SD signals simultaneously for further system flexibility; this is particularly useful when instigating a system upgrade.

Added to this, the camera's quiet movement, compact size, light weight, and stylish design broaden the options when developing ideal applications.



BRC-300/300P

The standard-definition BRC-300 comes equipped with three 1/4.7-type Advanced HAD™ CCD sensors. This camera delivers dependable picture quality and is the best for cost-efficient SD applications. It can capture images in 4:3 and 16:9 aspect ratios, the latter providing a wider viewing angle.



Features

Auto White Balance

The BRC-Z700 and BRC-Z330 have an enhanced type of auto mode (Auto 2), which adds to the conventional auto mode (Auto 1). In Auto 2, the camera recognises a wider range of colour temperature as white – this is useful for video shooting when there are frequent variations in the lighting source.

Colour Adjustment

The BRC-Z700 and BRC-Z330 can enhance or reduce a specific colour region without changing the white balance focusing point. Both of these cameras adjust the saturation of six colours independently, and the BRC-H700 is able to modulate six colours simultaneously.

Colour Detail

The BRC-Z700 and BRC-Z330 can adjust the image enhancer of a specific colour, which is an enhancement over the conventional skin tone detail function. This allows you to adjust not only skin tone colour but also all other colours.

Colour AE

The BRC-Z330 is equipped with a Colour AE function. When the camera detects a particular colour, it adjusts exposure specifically for the colour. This feature is useful when shooting objects located in front of a single-coloured background. Also, the camera can adjust the skin tone colour to the best brightness.

Applications

Corporate/Boardroom

The BRC Series cameras are excellent for various business communication applications, such as videoconferencing, corporate training, and transmission of managers' regular speeches. Since four cameras in the series each have a particular benefit, there is scope to select the right camera for every different application. To quickly re-use a camera after someone else has been using it, simply touch a button on the supplied controller to recall pre-specified positions for capturing speech and switching scenes.

Auditorium/Concert Hall

With pan/tilt movement, the wide shooting range of a single camera can capture an entire live performance, including audience shots. This ability of the BRC Series means that fewer cameras and camera operators are required, resulting in huge cost savings. These cameras can easily get close shots of performers from locations that are typically difficult for a photographer to reach. Additionally, each camera's compact size and quiet movement avoid distracting audiences from the performance.

City Council

Remotely controlled by the RM-BR300 or BRS-200, BRC Series cameras quickly move to capture the required action at council meetings or in trials. Single-operator switching and broadcasting are supported by the BRS-200 switcher, while operation is simplified and streamlined by multiple presets which pre-define P/T/Z positions and other parameters.

Sports Events

With high-speed and extremely smooth pan/tilt movement, BRC Series cameras can follow the swift, spontaneous flow of sports action. By pre-installing cameras in high positions, they can deliver extensive views of each sporting event, and capture shots at unique angles, typically very difficult to achieve with conventional shooting. Also, optical fiber connection (max. 1,000m) achieves long-distance data transfer[*1] and enables single-operator broadcasting.

[*1] Long-distance control using an optical fibre connection is available for the BRC-H700, BRC-Z700, and BRC-300/300P.

Studio

The BRC Series is also ideal for use in the broadcast industry. The BRC-H700, BRC-Z700 and BRC-Z330[*2] can output HD-SDI signals – a necessity for highly demanding broadcasters who seek uncompromising picture quality. With flexible installation, these cameras can be painlessly integrated into the currently operating studio with tripods or ceiling brackets. For the wide angles required in studio shooting, wide conversion lenses are available[*3]. And there are numerous other camera benefits, including quiet and smooth P/T/Z movement, a tally indicator, cost-efficiency, and more.

[*2] HD-SDI outputs are available using optional video cards.
[*3] Wide conversion lenses are available for the BRC-Z700 and BRC-300.

Education

By deploying BRC Series cameras, tutors can offer students new educational opportunities anytime and anywhere. With the real-time distribution of lectures and educational content, academic institutions can deliver e-learning classes, and professors can usefully share professional opinions and collaborate via networked communication.

House of Worship

By using a large screen in combination with highly sensitive BRC Series cameras, an organiser can deliver clear video images with accurate colour reproduction. Attendees can be more involved in the service and follow ongoing events better than ever before. With a variety of peripheral components, a range of user-friendly systems can be designed to suit the size and budget of every institution.

Bridal

Pre-installed BRC Series cameras are conducive to a perfectly peaceful and tranquil atmosphere, as their silent movement cannot disturb anyone. With high picture performance and zooming capabilities, these cameras can capture natural facial expressions and graceful movements. Also, due to their compact and sleek design, these cameras blend easily into the surrounding environment.

System Configurations

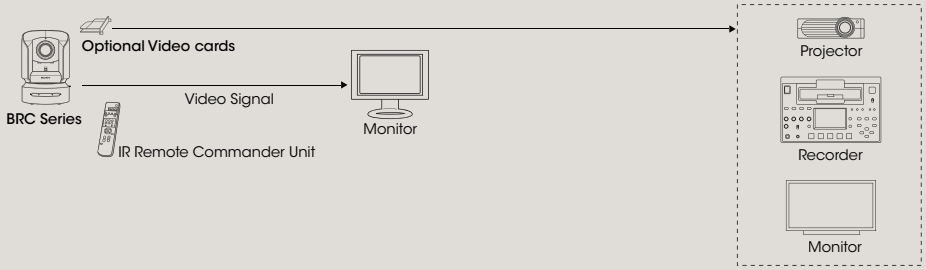
You can configure a variety of systems to meet your application needs by choosing HD and/or SD components.
Users can choose either HD or SD system components.

BRC Simple System

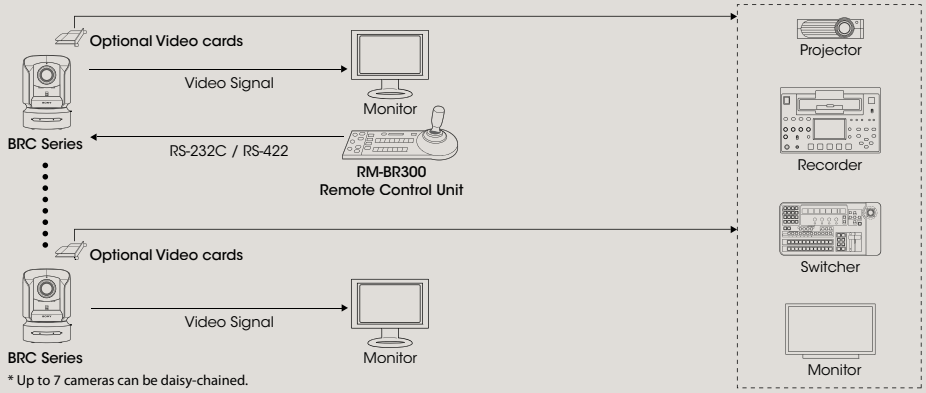
	BRC-H700	BRC-Z700	BRC-Z330	BRC-300/300P
Wide Conversion Lens	—	**VCL-HG0862***	—	**VCL-0737W**
Optical Video Card (inserted to the BRC Series)	**HFBK-HD1** HD-SDI, HD Component (Y/Pb/Pr), RGB	**BRBK-HSD1** HD-SDI, SD-SDI	**BRBK-HD2** HD-SDI	**BRBK-301** Composite, Y/C, SD Component (Y/Cb/Cr), RGB
	HFBK-SD1 SD-SDI, Composite, Y/C, SD Component (Y/Cb/Cr), RGB			**BRBK-302** SD-SDI
	HFBK-TS1 i.LINK (HDV)			**BRBK-304** i.LINK (DV)
	HFBK-XG1 WXGA, XGA, VGA			
Remote Control unit	**RM-BR300**			

* The lens hood supplied with the VCL-HG0862K cannot be used.

Small Scale System



Medium Sized System



* Up to 7 cameras can be daisy-chained.

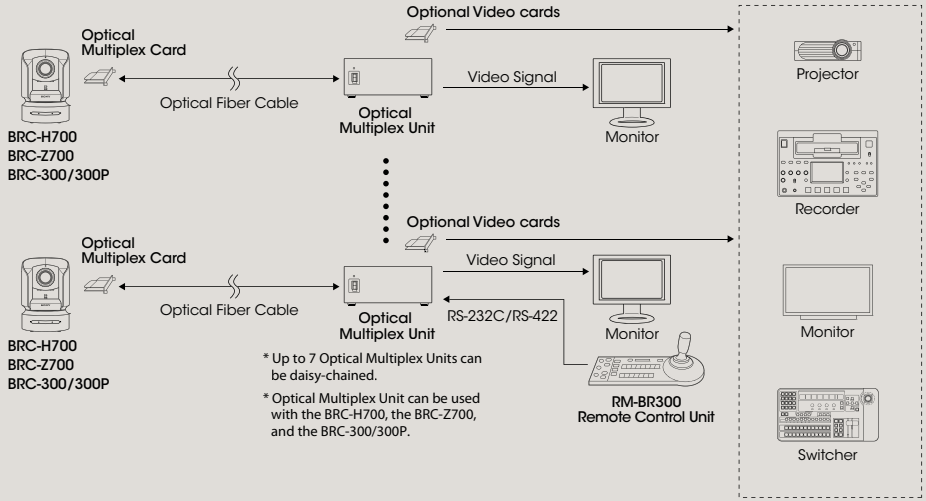
System Configurations

BRC and BRU System

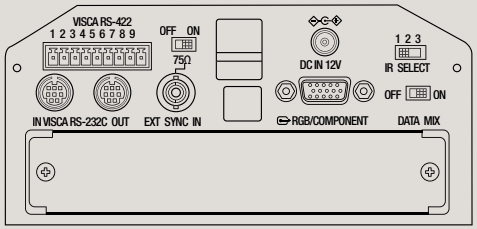
	BRC-H700	BRC-Z700	BRC-300/300P
Wide Conversion Lens	—	VCL-HG0862*	VCL-0737W
Optical Multiplex Card (inserted to the BRC Series)	BRBK-H700	BRBK-MF1	BRBK-303
Optical Fibre Cable	CCFC-M100HG		CCFC-M100
Optical Multiplex Unit	BRU-H700		BRU-300/300P
Optical Video Card (inserted to the BRC Series)	HFBK-HD1 HD-SDI, HD Component (Y/Pb/Pr), RGB		BRBK-301 Composite, Y/C, SD Component (Y/Cb/Cr), RGB
	HFBK-SD1 SD-SDI, Composite, Y/C, SD Component (Y/Cb/Cr), RGB		BRBK-302 SD-SDI
	HFBK-TS1 i.LINK (HDV)		BRBK-304 i.LINK (DV)
	HFBK-XG1 WXGA, XGA, VGA		
Remote Control unit	RM-BR300		

* The lens hood supplied with the VCL-HG0862K cannot be used.

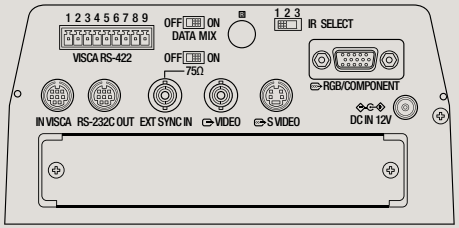
Large Scale System



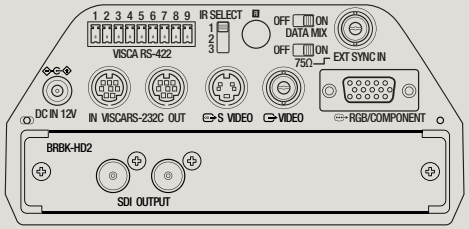
Rear Panels



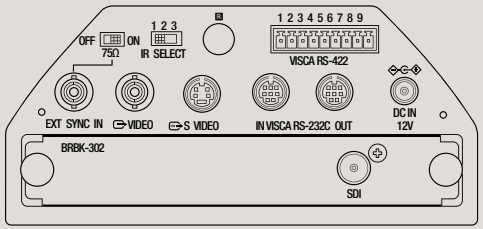
BRC-H700



BRC-Z700



BRC-Z330



BRC-300/300P

Optional Accessories

BRC-H700

BRBK-H700
HD Optical Multiplex Card

BRC-H700 | BRU-H700

HFBK-HD1
HD Interface Board

BRC-H700 | BRU-H700

HFBK-SD1
SD Interface Board

BRC-H700 | BRU-H700

HFBK-XG1
XGA Interface Board

BRC-H700 | BRU-H700

HFBK-TS1
i.LINK (HDV) Interface Board

BRC-Z700

BRBK-MF1
HD Optical Multiplex Card

BRC-Z700

BRBK-HSD1
HD/SD-SDI Output Card

BRC-300

BRBK-303
SD Optical Multiplex Card

BRC-300 | BRU-300

BRBK-301
Analog RGB Component Card

BRC-300 | BRU-300

BRBK-302
SDI Card

BRC-300 | BRU-300

BRBK-304
DV Card

BRC-Z330

BRBK-HD2
HD-SDI Output Card

BRU-H700 | BRC-Z700

BRU-H700
HD Optical Multiplex Unit

BRC-300

BRU-300/BRU-300P
SD Optical Multiplex Unit

BRC-H700 | BRC-Z700

CCFC-M100HG
Optical Fiber Cable
2-core Multi-mode Optical Fiber Cable
(100 m long), Extension Plug Included

BRC-300

CCFC-M100
Optical Fiber Cable
2-core Multi-mode Optical Fiber Cable
(100 m long), Extension Plug Included

CCMC-9DS*
RGB/Component, Y/C Cable (9-pin D-sub)

CCXC-9DBS*
RGB/Component, VBS Cable (9-pin D-sub)

BRC-Z700

VCL-HG0862
VCL-HG0862K**
Wide Conversion Lens

BRC-300

VCL-0737W
Wide Conversion Lens

*These cables are for use with the BRBK-301 or HFBK-SD1. **The lens hood supplied with the VCL-HG0862K cannot be used.

Peripheral Equipments

BRS-200
Remote Camera Operating Switcher

- Live Production and Presentation Switcher for HD or SD Systems
- Multi Viewing Function
- Rich Selection of Inputs and Outputs
- Standard: SDI input x 4 / output x 4, DVI-I output x 1
- With option: SDI input x 8 / output x 4, DVI-I input x 1 / output x 2
- BRC Series Camera Control Capability

RM-BR300
Remote Control Unit

- Easy Operation of Versatile Camera Adjustments
- The VISCA RS-232C/RS-422 Communication Interfaces Allow High-speed, Long-distance Communication
- A Tally Lamp Input/Contact Output Terminal Allows Connection of a Video Switcher
- Preset Feature to Save Camera Settings up to 16 positions*

* For the BRC-300/300P, six positions can be saved.

Specifications

	BRC-H700	BRC-Z700	BRC-Z330	BRC-300	BRC-300P
Camera					
Signal systems	1080/59.94i or 1080/50i (switchable)	1080/59.94i, NTSC or 1080/50i, PAL (switchable)	60 Hz: 1080/59.94i, 720/59.94P, NTSC 50 Hz: 1080/50i, 720/50P, PAL	NTSC	PAL
Sync systems	Internal/External				
Image device	1/3-type IT CCD x 3	1/4-type CMOS x 3	1/3-type CMOS image sensor	1/4.7- type CCD x 3	
Effective picture elements	Approx. 1.07 Megapixels	Approx. 1.04 Megapixels	Approx. 2.16 Megapixels	Approx. 0.69 Megapixels	
Lens	12x optical zoom (48x with digital zoom), Carl Zeiss Vario-Sonnar T* lens	20x optical zoom (80x with digital zoom), Carl Zeiss Vario-Sonnar T* lens	18x optical zoom (72x with digital zoom)	12x optical zoom (48x with digital zoom)	
Focal length	f=4.5 to 54 mm (F1.6 to F2.8)	f=3.9 to 78 mm (F1.6 to F2.8)	f=4.6 to 82.8 mm (F1.6 to F2.2)	f=3.6 to 43.2 mm (F1.6 to F2.8)	
Lens filter diameter	72 mm	62 mm	—	37 mm	
Minimum object distance	500 mm (Wide), 800 mm (Tele)	10 mm (Wide, Limiter Off), 500 mm (Wide, Limiter On), 800 mm (Tele)	100 mm (Wide, Limiter Off), 500 mm (Wide, Limiter On), 1,500 mm (Tele)	300 mm (Wide), 800 mm (Tele)	
Horizontal viewing angle	5.5 to 60.3 degrees	1.8 to 55.2 degrees	3.3 to 55.1 degrees	4:3 mode: 3.3 to 37.8 degrees, 16:9 mode: 4.0 to 45.4 degrees	
Focusing system	Auto/Manual				
Pan/Tilt angle	-170 to +170 degrees (Pan), -30 to +90 degrees (Tilt)		-175 to +175 degrees (Pan), -30 to +90 degrees (Tilt)	-170 to +170 degrees (Pan), -30 to +90 degrees (Tilt)	
Pan/Tilt speed	0.25 to 60 degrees/s (Pan/Tilt)	0.22 to 60 degrees/s (Pan/Tilt)	0.25 to 60 degrees/s (Pan/Tilt)		
Minimum illumination	6 lx (50 IRE, F1.6, +18 dB)	6 lx (50 IRE, F1.6, +24 dB)		7 lx (25 IRE, F1.6, +18 dB)	
Video S/N ratio	50 dB				
Shutter speed	1/10,000 to 1/60 s or 1/10,000 to 1/50 s			1/10,000 to 1/4 s	1/10,000 to 1/3 s
Gain	Auto/Manual (0 to 18 dB and Hyper Gain)	Auto/Manual (0 to 24 dB and Hyper Gain)	Auto/Manual (-3 to 24 dB and Hyper Gain)	Auto/Manual (-3 to 18 dB)	
White balance	Auto/Indoor/Outdoor/One-push/Manual	Auto1/Auto2/Indoor/Outdoor/One-push/Manual		Auto/Indoor/Outdoor/One-push/Manual	
Image stabiliser	On/Off (Optical)		—		
Image flip	On/Off				
ND filter	Off/ND1/ND2	—	Off/1/4/1/16 switchable in menu	—	
Preset positions	16			6	
Interfaces					
HD video output	D-Sub 15 pin: Component (Y/Pb/Pr) or RGB, HD, VD or SYNC			—	
SD video output	—	BNC: Composite, Mini DIN 4 pin : Y/C	Composite, Y/C	BNC: Composite (NTSC),Mini DIN 4 pin: Y/C	BNC: Composite (PAL),Mini DIN 4 pin : Y/C
External Sync input	BNC				
Camera control	Mini DIN 8 pin: RS-232C (VISCA IN), Mini DIN 8 pin: RS-232C (VISCA OUT), Connector plug 9 pin: RS-422 (VISCA IN/OUT)				
General					
Operating temperature	0 to 40 °C (32 to 104 °F)				
Storage temperature	-20 to 60 °C (-4 to 140 °F)				
Power requirements	DC 10.8 to 13.2 V				
Power consumption	Max. 24 W (without optional cards)	Max 28.8 W (without optional cards)	Max 18 W (without optional cards)	Max. 21.6 W (without optional cards)	
Dimensions (W x H x D)	207 x 310.8 x 207 mm (8 1/4 x 12 1/4 x 8 1/4 inches)	198 x 247 x 238 mm (7 7/8 x 9 3/4 x 9 3/8 inches)	160.8 x 186 x 193.4 mm (6 3/8 x 7 3/8 x 7 5/8 inches)	180 x 210.1 x 205 mm (7 1/8 x 8 3/8 x 8 1/8 inches)	
Mass	4.5 kg (9 lb 15 oz)		1.9 kg (4 oz)	2.5 kg (5 lb 8 oz)	
Supplied accessories	IR Remote Commander Unit, AC power adaptor, AC power cord, RS-422 connector plug, Ceiling bracket x2, Wire rope, Screws, Operating instructions				

Specifications

	BRU-H700	BRU-300	BRU-300P
Interfaces			
Optical fibre connector	LC Duplex Fiber Connector		
HD video output	D-Sub 15 pin: Component (Y/Pb/Pr) or RGB, HD, VD or SYNC	—	
SD video output	—	BNC: Composite (NTSC), Mini DIN 4 pin: Y/C	BNC: Composite (PAL), Mini DIN 4 pin: Y/C
External sync input	BNC		
External sync output	BNC		
Audio line output	Phono jack x2 (L/R)	—	
Camera control	Mini DIN 8 pin: RS-232C (VISCA IN), Mini DIN 8 pin: RS-232C (VISCA OUT), Connector plug 9 pin: RS-422 (VISCA IN/OUT)		
Optional card slots	2 slots	2 slots (When both slots are used simultaneously, the interface cards must be of two different types.)	
General			
Operating temperature	0 to 40 °C (32 to 104 °F)		
Storage temperature	-20 to 60 °C (-4 to 140 °F)		
Power requirements	AC 100 to 240 V (50/60 Hz)		
Power consumption	Max. 10 W (without optional cards)	Max. 9 W (without optional cards)	
Dimensions (W x H x D)	210 x 86 x 240 mm (8 3/8 x 3 1/2 x 9 1/2 inches)	212 x 88 x 210 mm (8 3/8 x 3 1/2 x 8 3/8 inches)	
Mass	2.4 kg (5 lb 5 oz)	2.1 kg (4 lb 10 oz)	
Supplied accessories	AC power cord, RS-422 connector plug, RS-232C cable (3 m, Mini DIN 8 pin), Operating instructions		

	HFBK-HD1	HFBK-SD1	HFBK-XG1	HFBK-TS1
Video output	D-Sub 15 pin: Component (Y/Pb/Pr) or RGB, HD, VD or SYNC BNC x2: HD-SDI	D-Sub 9 pin: Component (Y/Pb/Pr) or RGB, Composite or Y/C, SYNC BNC: Composite BNC: SD-SDI	D-Sub 15 pin: RGB, HD, VD (WXGA/XGA/VGA)	i.LINK 6 pin: HDV OUT (IEEE1394 S100)
Audio line input				Phono jack x2 (L/R)

	BRBK-HSD1	BRBK-301	BRBK-302	BRBK-304	BRBK-HD2
Video output	BNC x2: HD-SDI or SD-SDI	D-Sub 9 pin: Component (Y/Pb/Pr) or RGB, Composite or Y/C, SYNC	BNC: SD-SDI	i.LINK 6 pin: DV OUT (IEEE1394 S100)	HD-SDI

Discontinued Models

Monochrome Camera	
XCL-V500	'09
XCL-X700	'09
XCD-V50	'09
XCI-SX1	'09
XCI-V3	'09
XCL-5000	'09
XCD-SX910UV	'08
XCD-SX910	'08
XCD-X710	'08
XCD-V50	'08
XC-55BB	'04
XC-55	'04
XCD-SX900UV	'04
XC-HR300	'04
XC-7500	'04
XC-8500CE	'04
XCD-X700	'04
XCD-SX900	'04
XC-73	'01
XC-73CE	'01
XC-73L	'01
XC-75	'01
XC-75CE	'01
XC-75L	'01
XCH-1125	'99
XC-77	'99
XC-77CE	'99
XC-77BB	'99
XC-77BBCE	'99
XC-77RR	'99
XC-77RRCE	'99
XC-37	'93
XC-38	'93
XC-39	'93
XC-57	'93
XC-57CE	'93

Colour Camera	
XCD-V50CR	'09
DFW-SX910	'08
DFW-X710	'08
XCD-SX910CR	'08
XCD-X710CR	'08
XCD-V50CR	'08
DFW-X700	'04
DFW-SX900	'04
XC-003	'04
XC-003P	'04
DFW-V500	'04
DFW-VL500	'04
EVI-D30	'04
EVI-D31	'04
XC-777A	'02
XC-777AP	'02
XC-999	'02
XC-999P	'02
CCM-DS250	'01
DFW-V300	'01
EVI-G20	'01
EVI-G21	'01
EVI-R10	'01
EVI-R11	'01
EVI-R50	'01
EVI-R51	'01
XC-333	'00
XC-333P	'00
XC-711	'00
XC-711P	'00
XC-711RR	'00
CCM-PC5	'99
XC-009	'99
XC-009P	'99
XC-007	'98
XC-007P	'98
XC-117	'93
XC-117P	'93

Card Camera (Monochrome/Colour)	
CCB-M25	'04
CCB-M27B	'04
CCB-M35A	'04
CCB-ME37	'04
CCB-ME47	'04
CCB-M25CE	'02
CCB-M27BCE	'02
CCB-M35ACE	'02
CCB-M37	'02
CCB-M37CE	'02
CCB-ME37CE	'02
CCB-MS37CE	'02
CCB-GC7YC	'02
CCB-ME47CE	'01
CCB-GC7YCP	'01
CCB-GL5	'99
CCB-GL5P	'99
CCB-GL5YC	'98
CCB-GL5YCP	'98

Discontinued Models

Camera Block

FCB-EX78B	'07
FCB-EX78BP	'07
FCB-EX780B	'07
FCB-EX780BP	'07
FCB-S3000	'07
FCB-S3000P	'07
FCB-IX45A	'06
FCB-IX45AP	'06
FCB-IX47A	'06
FCB-IX47AP	'06
FCB-EX45M	'06
FCB-EX45MCE	'06
FCB-EX45B	'06
FCB-EX45BP	'06
FCB-EX48B	'06
FCB-EX48BP	'06
FCB-EX480B	'06
FCB-EX480BP	'06
FCB-IX10A	'05
FCB-IX10AP	'05
FCB-EX45A	'04
FCB-EX45AP	'04
FCB-EX48A	'04
FCB-EX48AP	'04
FCB-EX480A	'04
FCB-EX480AP	'04
FCB-EX780S	'04
FCB-EX780SP	'04
FCB-IX10	'03
FCB-IX10P	'03
FCB-IX47	'03
FCB-IX47P	'03
FCB-EX48L	'03
FCB-EX48LP	'03
FCB-EX480L	'03
FCB-EX480LP	'03
FCB-EX480X	'03
FCB-EX480XP	'03
EVI-400	'02
EVI-400DR	'02
EVI-401	'02
EVI-401DR	'02
FCB-EX470L	'02
FCB-EX470LP	'02
EVI-330	'01
EVI-330T	'01
EVI-331	'01
EVI-331T	'01
EVI-370	'01
EVI-370D	'01
EVI-370DG	'01
EVI-371	'01
EVI-371D	'01
EVI-371DG	'01
CCB-EX37	'00
CCB-EX37P	'00
FCB-EX47L	'00
FCB-EX47LP	'00
FCB-IX470	'00
FCB-IX470P	'00
EVI-310	'99
EVI-311	'99
EVI-370G	'99
EVI-371G	'99
EVI-330V	'98
EVI-331V	'98
EVI-900	'98
EVI-901	'98
EVI-130	'97
EVI-131	'97
EVI-110	'96
EVI-111	'96
XCB-009	'96
XCB-009P	'96
EVI-100	'93
EVI-101	'93
EVI-1011	'93
EVI-1011P	'93
EVI-200	'93
EVI-201	'93

Cable

CCXC-T20P02	'05
CCXC-6P05	'04
CCXC-9DD	'04
CCXC-9DB	'04
CCE-50R	'04
CCE-50M	'02
CCE-150R	'02
CCXC-12P02S	'00
CCXC-12P05S	'00
CCXC-12P05U	'00
CCXC-12P05D	'00
CCXC-12P05L	'00
CCXC-12P05R	'00
CCXC-12P10S	'00
CCXC-12P25S	'00
CCXC-T20P05	'00
CCXC-T20P10	'00
CCXC-20P20	'00
CCXC-H12P05	'00
CCXC-H20P05	'00
CCXC-20P20	'99
CCXC-12P02	'98
CCXC-12P05	'98
CCXC-12P10	'98
CCXC-12P25	'98

Lens

VCL-08YM	'08
VCL-12YM	'08
VCL-16Y-M	'08
VCL-25Y-M	'08
VCL-50Y-M	'08
VCL-12SXM	'06
LO-75D	'05
VCL-08WM	'05
VCL-16WM	'05
VCL-25WM	'05
50MM MACRO LENS	'05
LO-77ERK	'05
LO-999ERK	'05
VCL-0637W	'04
VCL-M45YM	'02
25MM HD LENS	'02
LO-37ND	'02
LO-37IR	'02
VCL-707BXM	'99
VCL-714BXEA	'99
CCL-06Z	'99
CCL-M05XE	'99
CCL-M07XE	'99
CCL-C04XE	'98
CCL-C08XE	'98
CCL-M03XE	'98
LO-C35	'98
LO-G35	'98
VCL-25BXM	'97
VCL-08SBYA	'93
VCL-16SBY	'93
VCL-25BY	'93
42MM Whole Mirror Lens	'93
Variable Focusing Lens	'93
LO-37CMT	'93
LO-39CMT	'93

Discontinued Models

Others

PC-XC04	`07
DFWS-77	`04
CMA-87	`04
PC-XC06	`04
VCT-37	`04
VCT-75I	`04
PSB-915IA	`04
CMA-999	`02
CMA-999P	`02
PC-XC03	`02
LO-GC7	`02
XCK-L777	`02
DFWA-400	`01
MVA-15	`01
DC-777	`00
DC-777CE	`00
DC-77RR	`00
DC-77RRCE	`00
FK-63	`00
FK-69	`00
IF-51	`00
DVBK-1/A	`00
LDI-100B	`00
LDI-D100B	`00
LDI-D50B	`00
XCM-003	`00
XCM-009	`00
XCM-7500	`00
XCM-7573	`00
XCM-8500	`00
FK-57	`99
LMD-1040XC	`99
MSI-1125	`99
MVA-40	`99
MVA-41A	`99
SEU-2092	`99
VCT-77RR	`99
YP-186XC	`95
CBK-117	`93
CBK-38GL	`93
DC-37	`93
DC-38	`93
DC-39	`93
VCT-57I	`93
XCM-37	`93
XCM-38	`93
XCM-39	`93
XCM-57	`93
XCM-117	`93
VK-120A	